Duke Power State Park
General Management Plan

DRAFT

GENERAL MANAGEMENT PLAN

FOR

DUKE POWER STATE PARK

Department of Environment, Health, and Natural Resources
Division of Parks and Recreation
Planning and Development Section
April, 1994

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INTRODUCTION

Planning is an essential element of effective and efficient park administration and management. The North Carolina General Assembly acknowledged its importance by passing state parks system legislation that includes planning requirements.

The 1987 State Parks Act (G.S.114-44.7 through 114-44.14) stipulates that a State Parks System Plan be prepared. Such a plan was completed in December 1988. It evaluated the statewide significance of parks, identified duplications and deficiencies in the system, described the resources of the system, proposed solutions to problems, described anticipated trends, and recommended means and methods to accommodate trends.

The State Parks Act also requires each park to have an individual general management plan. The general management plans are required to:

> *...include a statement of purpose for the park based upon its relationship to the System Plan and its classification. An analysis of the major resources and facilities on hand to achieve those purposes shall be completed along with a statement of management direction. The general management plan shall be revised as necessary to comply with the System Plan and to achieve the purpose of the [State Parks Act].*

The general management plan (GMP) is to be a comprehensive five-year plan of management for a park unit. GMP's function to:

1. describe park resources and facilities;
2. state the purpose and importance of each park unit;
3. outline interpretive themes and propose locations for informational and interpretive facilities;
4. analyze park and recreation demands and trends in the park's service area;
5. summarize the primary laws guiding park operations;
6. identify internal and external threats to park natural and cultural resources, and propose appropriate responses;
7. identify and set priorities for capital improvement needs;
8. analyze visitor services and propose efficient, effective, and appropriate means of responding to visitor needs; and
9. review park operations and identify actions to support efficient and effective park administrative procedures.

The GMP for Duke Power State Park, developed with public involvement, is intended to serve these purposes.

TABLE OF CONTENTS

Page

INTRODUCTION

I. DESCRIPTION OF DUKE POWER STATE PARK....................I-1

Location..I-1
Access..I-1
Land Base and Visitor Facilities..........................I-1
History of the Park Area..................................I-3

II. PARK PURPOSES..II-1

Mission Statement of the North Carolina State Parks.......................................II-1
Duke Power Park Purpose Statement......................II-1

III. SUMMARY OF INTERPRETIVE THEMES......................III-1

Primary Interpretive Themes.............................III-1
Secondary Interpretive Themes..........................III-2

IV. PARK AND RECREATION DEMAND AND TRENDS..................IV-1

Annual Visitation Trends.................................IV-1
Monthly Visitation Trends................................IV-1
Visitor Information..IV-4
Population Density and Growth Trends...................IV-5
Interpretation and Environmental Trends...............IV-9
Outdoor Recreation Participation in North..........IV-9 Carolina
Priorities of Public Outdoor Recreation Funding....IV-11

V. SUMMARY OF LAWS GUIDING PARK MANAGEMENT..................V-1

North Carolina Constitution...............................V-1
State Laws..V-1
Federal Laws..V-3
Duke Power Master Plan.....................................V-3
Deed Restrictions..V-4

VI. NATURAL AND CULTURAL RESOURCE MANAGEMENT...............VI-1

Natural Resource Management Policy....................VI-1
Natural Communities..VI-2
Natural Heritage Program Element Occurrences.......VI-5
Registered Natural Heritage Areas.....................VI-7
Resource Management Issues.............................VI-9 at Duke Power State Park

Page

VII. PHYSICAL PLANT INVENTORY....................................VII-1

Facility Inventory and Inspection Program.........VII-1
Building Inventory.................................VII-2
Facility Repair Needs..............................VII-2
Road and Utility Inventory.........................VII-7
Major Capital Improvement Project Priorities......VII-15

VIII. VISITOR SERVICES AND OPERATIONS.......................VIII-1

Operations Evaluation.............................VIII-1
Operation and Staffing Requirements of
  Wastewater Treatment Plants.....................VIII-1
Increased Maintenance Responsibilities and
  Staffing Needs..................................VIII-2
Poor Water Quality Impacts on Park Lake..........VIII-3
Management of Islands on Lake Norman
  Located Within Park Boundaries..................VIII-5
Dual Park Entrances...............................VIII-5
Seasonal Recruitment Problems.....................VIII-6
Location and Establishment of Park Boundaries....VIII-6
Park Facility Needs...............................VIII-7
The Duke Power State Park Name...................VIII-10
Lighted Park Gates at Appropriate Park Areas.....VIII-13
Shoreline Erosion Problems on Lake Norman........VIII-14
Residential Environmental Education Center.......VIII-14

IX. LAND ACQUISITION NEEDS..................................IX-1

Land Acquisition Status.............................IX-1
Future Land Acquisition Needs.......................IX-1
Land Acquisition Summary Table......................IX-1

APPENDIX A: PARK PROFILE.....................................A-1

APPENDIX B: CAPITAL IMPROVEMENT REQUESTS.....................B-1

I. DESCRIPTION OF
DUKE POWER STATE PARK

LOCATION

Duke Power State Park is located in Iredell County on the northeast shore of Lake Norman, the largest man-made lake in North Carolina. Charlotte lies approximately 32 miles south and Statesville approximately 10 miles north.

ACCESS

Regional and statewide access to Duke Power State Park is provided primarily by Interstate 40 and Interstate 77. I-40 runs east-west and passes through Statesville approximately 12 miles to the north of the park. I-77, passing approximately seven miles east of the park, provides north-south access, and particularly provides good road access to the park from Charlotte.

LAND BASE AND VISITOR FACILITIES

Duke Power State Park contains 1,458 acres of land and includes recreation facilities for fishing, picnicking, family and group camping, and hiking (Figure I-1). Boating access is provided to the 32,510-acre Lake Norman, and canoeing, rowboating, and swimming are available at the park's constant-level 33-acre lake. A bathhouse with showers, toilets, changing rooms, and vending machines serve the swimming area.

The park can be characterized as a series of peninsulas extending into Lake Norman. Generally, the shoreline rises steeply from Lake Norman to the high ground of the peninsulas. Most of the hardwood forest that once covered the park was cleared by early settlers for farming. Much of the park land has been reforested by pines, now in mid-successional stages. These forests are relatively open, with few understory species present.

Hardwood forests in the park exist as small pockets in stands of pine. Hickory, sweet gum, dogwood, and oak are most prevalent. Small trees and shrubs -- such as mountain laurel, wild hydrangea, box elder, and strawberry bush -- make up the understory. Stream banks are dominated by sweet gum, ironwood, and river birch, while beech may be found in coves. Alder and willow thickets occur along the lake's edge, and marsh communities include a variety of grasses, rushes, and sedges.

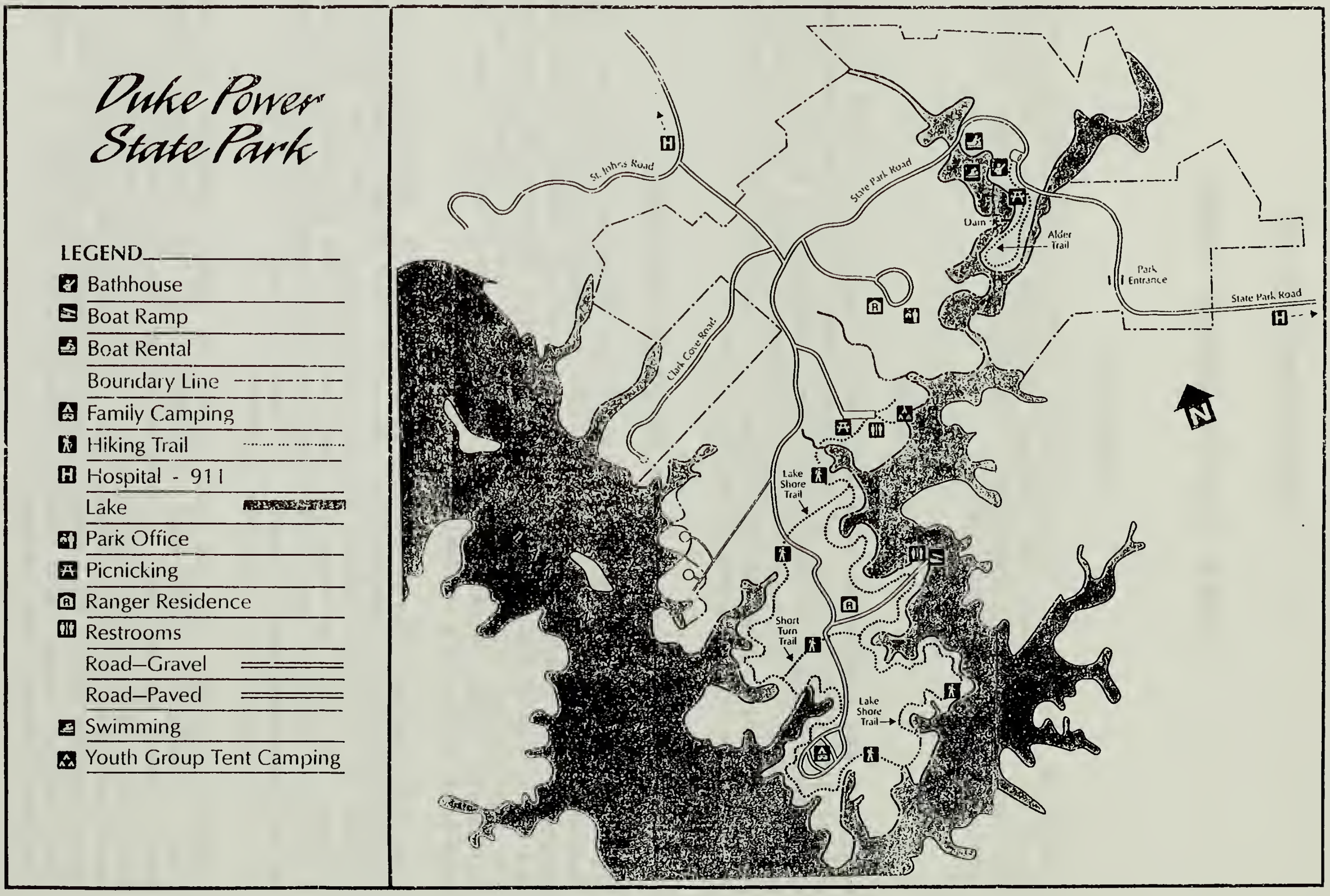

Figure I-1. Duke Power State Park

HISTORY OF THE PARK AREA

The area surrounding the Catawba River is rich in history. Artifacts, including pottery shards, flint chips and arrowheads, as well as burial sites near the river, indicate the presence of Native Americans long before European settlement. The Catawba Indians had an estimated population of 5,000 in 1600, but their numbers declined steadily due to disease and warfare with Iroquois tribes. By 1760, the tribe was reduced to 60 fighting men. In 1762, the Catawba left the area and moved south into South Carolina.

In the mid-18th century, Fort Dobbs was built to protect area settlers during the French and Indian War. Daniel Boone helped to defend this fort against the Cherokees. During the Revolutionary War, Lord Cornwallis set up a camp in the area, and a skirmish was fought at Cowans Ford, an area now covered by Lake Norman. The area was primarily agricultural, with an abundance of grain mills and grist mills along the waterways.

Lake Norman was created by Duke Power Company between 1959 and 1964, when Cowans Ford Dam was constructed across the Catawba River to generate electrical energy. The creation of the lake led to further industrialization of Mecklenburg County, helping to establish Charlotte as a major trade center. In September 1962, Duke Power Company donated 1,328 acres of land on the northeastern shore of Lake Norman for a state park.

Duke Power Company was required under its hydropower license to provide recreational facilities and public access to Lake Norman. Donation of the land for Duke Power State Park, however, was in addition to its obligations under its federal license. The deed states that the donation resulted from Duke Power Company's *"...desire to contribute to the welfare of the people of North Carolina and to provide recreational benefits for them..."* The deed specifies that the donated land *"...shall be used and maintained by the State of North Carolina as a state park named 'Duke Power State Park' to which the public shall be admitted without charge."* A reasonable user fee for facilities and recreational amenities is permissible.

The state tried unsuccessfully to get Duke Power Company to double the acreage being donated. It was felt that a larger land base was needed to meet the park's purposes, to serve the area's large population, and to ensure control of a shoreline fronting the peninsula where most of the donated 1,328 acres are located. Duke Power Company did agree in 1962 to maintain a 100-foot natural buffer along approximately half of the shoreline of the adjacent peninsula, which faces the main state park area. The agreement did not have an expiration date. It is not, however, legally binding.

II. PARK PURPOSES

MISSION STATEMENT
OF THE NORTH CAROLINA STATE PARKS

> *The North Carolina state parks system exists for the enjoyment, education, health, and inspiration of all our citizens and visitors. The mission of the state parks system is to conserve and protect representative examples of the natural beauty, ecological features and recreation resources of statewide significance; to provide outdoor recreation opportunities in a safe and healthy environment; and to provide environmental education opportunities that promote stewardship of the state's natural heritage.*

DUKE POWER PARK PURPOSE STATEMENT

Lake Norman was developed for hydropower and other electrical power purposes by Duke Power Company under a license granted by the Federal Energy Regulatory Commission. Duke Power Company donated 1,328 acres in 1962 to contribute to the welfare of the people of North Carolina and to provide them with recreation benefits by establishing a state park along the shore of Lake Norman. The deed transferring title to the state includes restrictions that the land be used and maintained as a state park primarily for recreational purposes. Subsequent acquisition and development with federal Land and Water Conservation Fund assistance requires that the park be retained and used for public outdoor recreation purposes.

Lake Norman is an important statewide recreational resource. North Carolina's largest man-made lake, it covers a surface area of approximately 32,510 acres. Duke Power State Park helps provide public access to Lake Norman for waterbased recreational activities, as well as providing a variety of recreational activities compatible with park resources. These include day-use activities such as hiking, swimming, boating, picnicking, and natural-resource interpretation. A range of overnight recreational opportunities are also offered. These varied activities increase the opportunities for public use of Lake Norman.

Duke Power State Park affords outstanding scenic vistas of the open water and shoreline of Lake Norman. The park's undeveloped acreage is in contrast to developed areas along much of Lake Norman's 520-mile shoreline.

The park contains the largest undeveloped acreage in public ownership along Lake Norman. Its relatively undeveloped wildlife habitats include both aquatic and terrestrial environments. These habitats offer opportunities for wildlife observation and environmental education. The effects of disturbance and succession are also evidenced throughout the park.

Although the Catawba River Valley is of statewide significance archaeologically, Duke Power State Park has not had a thorough archaeological study. At this time, the only known significant archaeologic resources are Native American burial sites. Geologically, the park contains good representative examples of typical rock types and weathering processes found in the Piedmont. Small areas of somewhat unusual rock -- quartzite and amphibolite -- are present.

Duke Power State Park exists as a state park primarily because of its important recreational and scenic values. The Division is charged with preserving these and other values and providing park experiences that promote pride in and understanding of North Carolina’s natural heritage.

III. SUMMARY OF INTERPRETIVE THEMES

The 1987 State Parks Act defines the purposes of the state parks system. It establishes that:

> *The State of North Carolina offers unique archaeologic, geologic, biologic, scenic and recreational resources. These resources are part of the heritage of the people of this State. The heritage of a people should be preserved and managed by those people for their use and for the use of their visitors and descendents.*

It further provides that:

> *Park lands are to be used by the people of this State and their visitors in order to promote understanding of and pride in the natural heritage of this State.*

One of the best methods of meeting these purposes is through environmental education. The Department of Environment, Health, and Natural Resources has adopted the following definition of environmental education:

> *Environmental education is a process that increases awareness, knowledge, and understanding of natural systems -- the interdependence of living things, the impact of human activities -- and results in informed decisions, responsible behavior, and constructive action.*

Duke Power State Park offers a setting suited to interpretation and environmental education activities. The park has one primary interpretive theme and several secondary themes.

PRIMARY INTERPRETIVE THEMES

OUTDOOR AQUATIC RECREATION

The purpose of the park is to provide public access to Lake Norman, North Carolina's largest man-made lake. Under the umbrella of aquatic recreation, activities can be developed on water safety, water quality, and water conservation.

SECONDARY INTERPRETIVE THEMES

Several secondary themes for Duke Power State Park have also been developed. They are:

Plant and Animal Communities
Changing Land Use by Humans

IV. DEMAND

ANNUAL VISITATION TRENDS

As Figure IV-1 illustrates, annual visitation has generally been trending upward over the past 10 years. From 1981 (105,030) to 1991 (207,154), visitation increased at an annual rate of approximately 7 percent. Hurricane Hugo severely impacted the park in the fall of 1989, causing the park to be closed during October, November and December of 1989 and continuing until March of 1990. Closure during this period dropped visitation in both 1989 and 1990 by approximately 25,000. Visitation in 1988 was lower than it would have been because the front gate was closed in the summer for bridge repair.

Continued growth in visitation is expected for Duke Power State Park over the next 10-year period. The counties surrounding the park have shown steady population growth, and while the rate of their growth is expected to slow in the coming decade, it will still be on the rise during the 1990's. Population growth, when coupled with the trend of taking shorter vacations closer to home, should result in increased visitation at Duke Power during the 1990's and beyond.

If visitation grows at 5 percent annually from 1992 to the year 2000, annual visitation in the year 2000 will have increased to 321,364. Such a projection does not include visitation increases that would result from capital improvements being made at the park.

MONTHLY VISITATION TRENDS

As can be expected of most state park units and especially one that is water based, Duke Power State Park receives its heaviest use in the warmer months (see Figure IV-2). Approximately 71.5 percent of park visitation occurs in the six-month period from April through September. No changes in this pattern can be expected.

The monthly visitation pattern suggests that part-time personnel should continue to be utilized in the busier April-through-August period. Permanent staff also need to be available to serve visitors during this period. Where possible, work scheduling should be undertaken with this in mind.

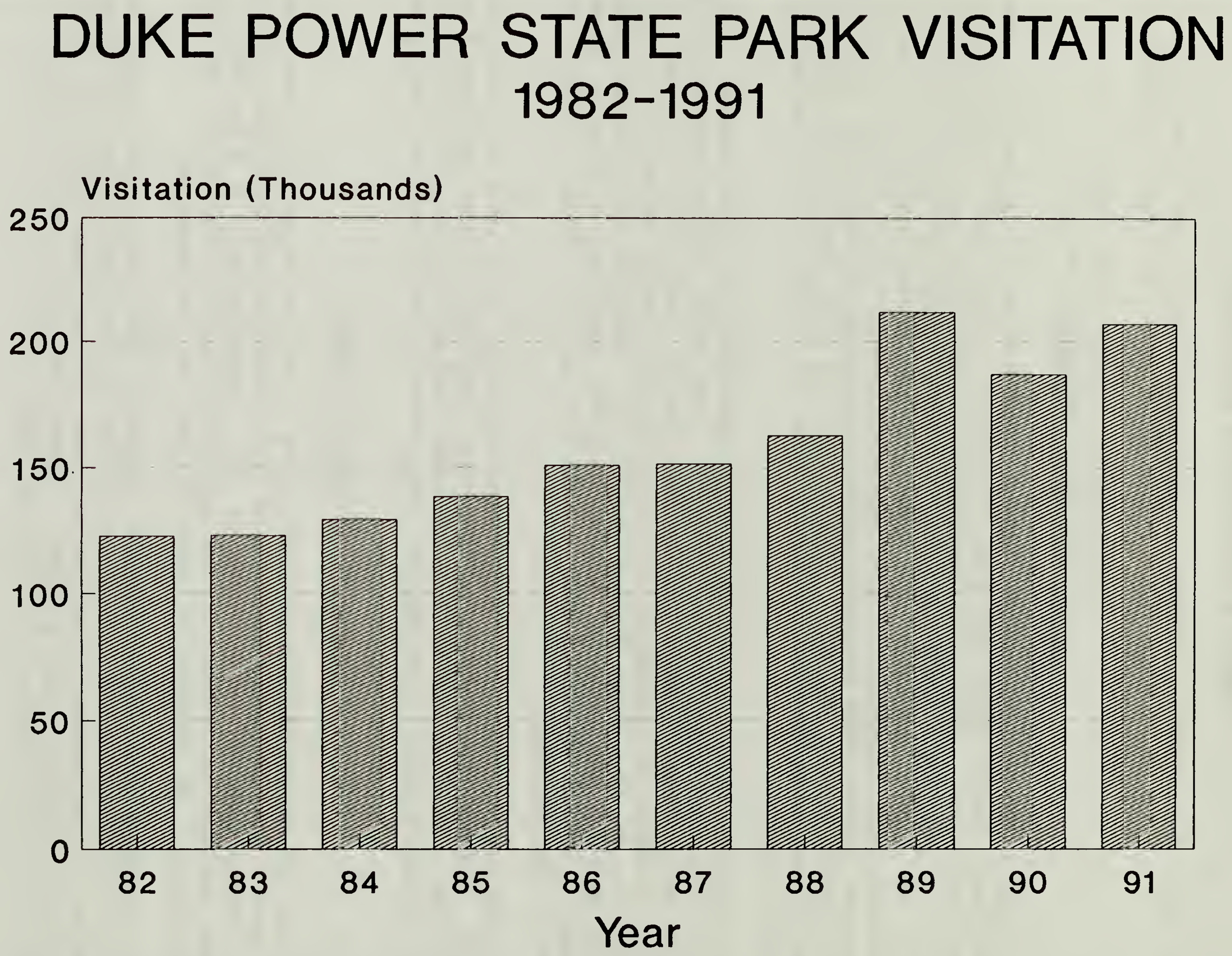

Figure IV-1. DUPO Annual Visitation

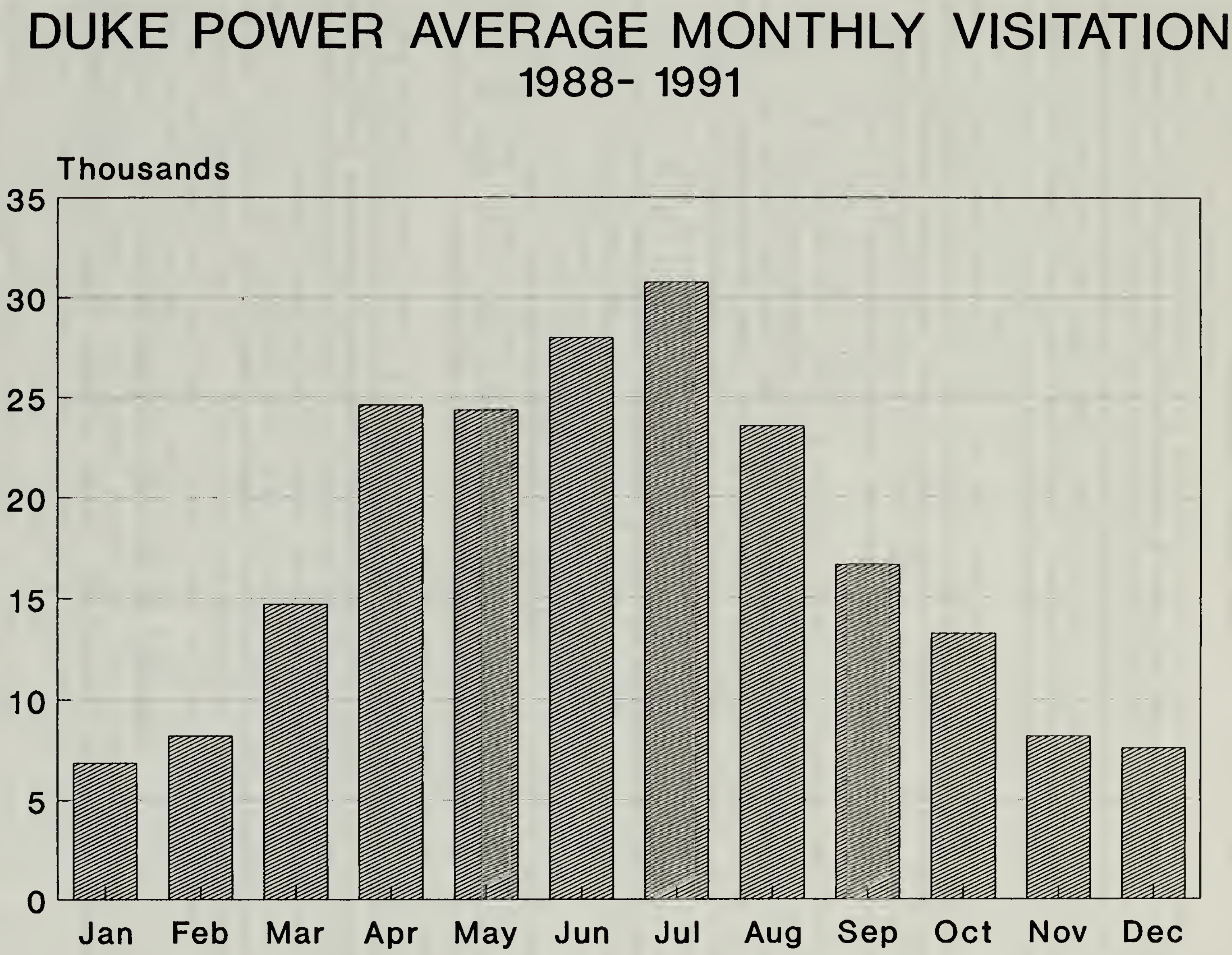

Figure IV-2. Average Monthly Visitation

VISITOR INFORMATION

In 1987 the U.S.D.A. Forest Service was contracted by the Department to conduct a Park Areas Recreation Visitors Survey (PARVS) of the North Carolina state parks system visitors in order to identify their socio-economic characteristics and economic contribution to the state's economy. While Duke Power was not one of the eight parks involved in the survey, some information concerning state park visitors in general was learned.

Why do people visit state park units? The convenient location was cited by 31 percent of the respondents; 25 percent thought other areas were too crowded; 21 percent liked the good facilities; 8 percent wanted to try a new area; 7 percent enjoyed the scenic beauty; and 6 percent came to see the attraction.

A good percentage of park visitors come from within a 30-mile radius (37 percent), while 17 percent come from 30 to 60 miles away. Park visitors surveyed indicated that the parks served as their sole destination 86 percent of the time. While most visitors come from nearby, the average one-way distance travelled was 139 miles.

Seventy-eight percent of those surveyed indicated that they were return visitors. The average number of return trips per year was six.

Sixty-one percent of visitors statewide came with family members, 16 percent with friends, and 7 percent with family and friends. Ten percent of visitors came alone. Visitors also came in small numbers in organized groups and multiple families. The average group size surveyed was 3.59.

PARVS data indicates that 16.8 percent of groups surveyed used more than one car, and that the average number of persons per car was 3.05. This figure is very close to the three-persons-per-car figure used in compiling Duke Power visitation figures.

The average age of the park visitor was 38.24 years. The age distribution was as follows:

Percent of Visitors by Age Group

Under 6	6-12	13-18	19-25	26-35	36-45	46-55	56-65	Over 65
6.7	11.6	10.6	12.5	20.1	16.9	0.9	7.3	4.4

Because the PARVS information shown above was gathered at eight park sites, not including Duke Power State Park, it cannot be considered a valid study of Duke Power's visitation trends. It is useful, however, in providing a general assessment of the state park system's visitation as well as a general indication of likely visitation at Duke Power.

Since over 18 percent of visitors are under the age of 13, demand exists for children's programs and facilities. Approximately 12 percent of visitors are 56 and older. This older segment of the general population will be increasing, and as it does, demand for improved quality, accessibility, and safety should increase. Decisions on future capital improvements should be made after consideration of these needs.

Of the eight park units that were selected for the PARVS, Kerr Lake is probably the most similar to Duke Power. Both parks are recreation oriented, both are located on large man-make lakes, and both have interstate highways nearby. PARVS information for Kerr Lake includes the following:

- The average visitor is 39.9 years old.
- 98.1 percent of visitors make the park their sole trip destination.
- 74.3 percent of the visitors are families.
- The average size group consists of 3.2 people.
- 67 percent of the visitors come from under 75 miles away.
- 79 percent of visitors are from North Carolina.
- 83 percent are return visitors.
  Visitors average 4.5 trips annually.
- 45.8 percent completed high school.
- 25.4 percent completed college.

POPULATION DENSITY AND GROWTH TRENDS

Duke Power State Park is located in one of North Carolina's most populated regions. Iredell County, in which the park is located, ranks 24th of North Carolina's 100 counties in density. It has 162 people per square mile as opposed to the state average of 136.

Most of the surrounding counties that comprise the bulk of Duke Power State Park's service area are above the state's average density (Figure IV-3). Duke Power State Park's primary service area includes Mecklenburg County, the state's most dense (970 people per square mile) and most highly populated county (511,433 people). 1,103,038 people, or 15.66 percent of the state's population, live in the eight counties that comprise Duke Power State Park's primary service area: Alexander, Cabarrus, Catawba, Davie, Iredell, Lincoln, Mecklenburg and Rowan counties.

Figure IV-4 shows the population of the eight counties in Duke Power State Park's primary service area in 1980 and 1990, as well as projections for the year 2000. In general, the population growth of the counties is projected to slightly exceed the growth rate of the state as a whole.

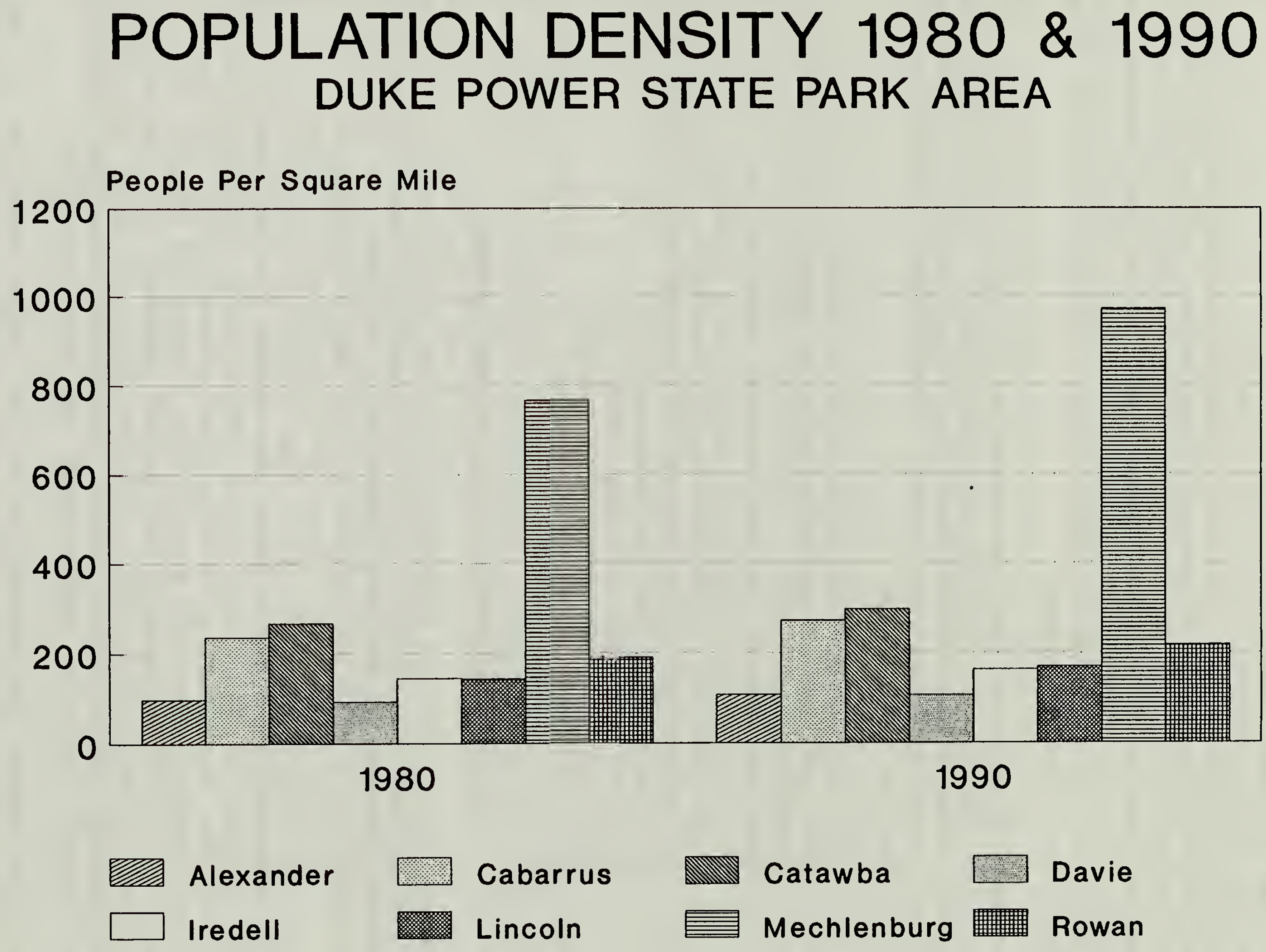

Figure IV-3.DUPO Area Population Density

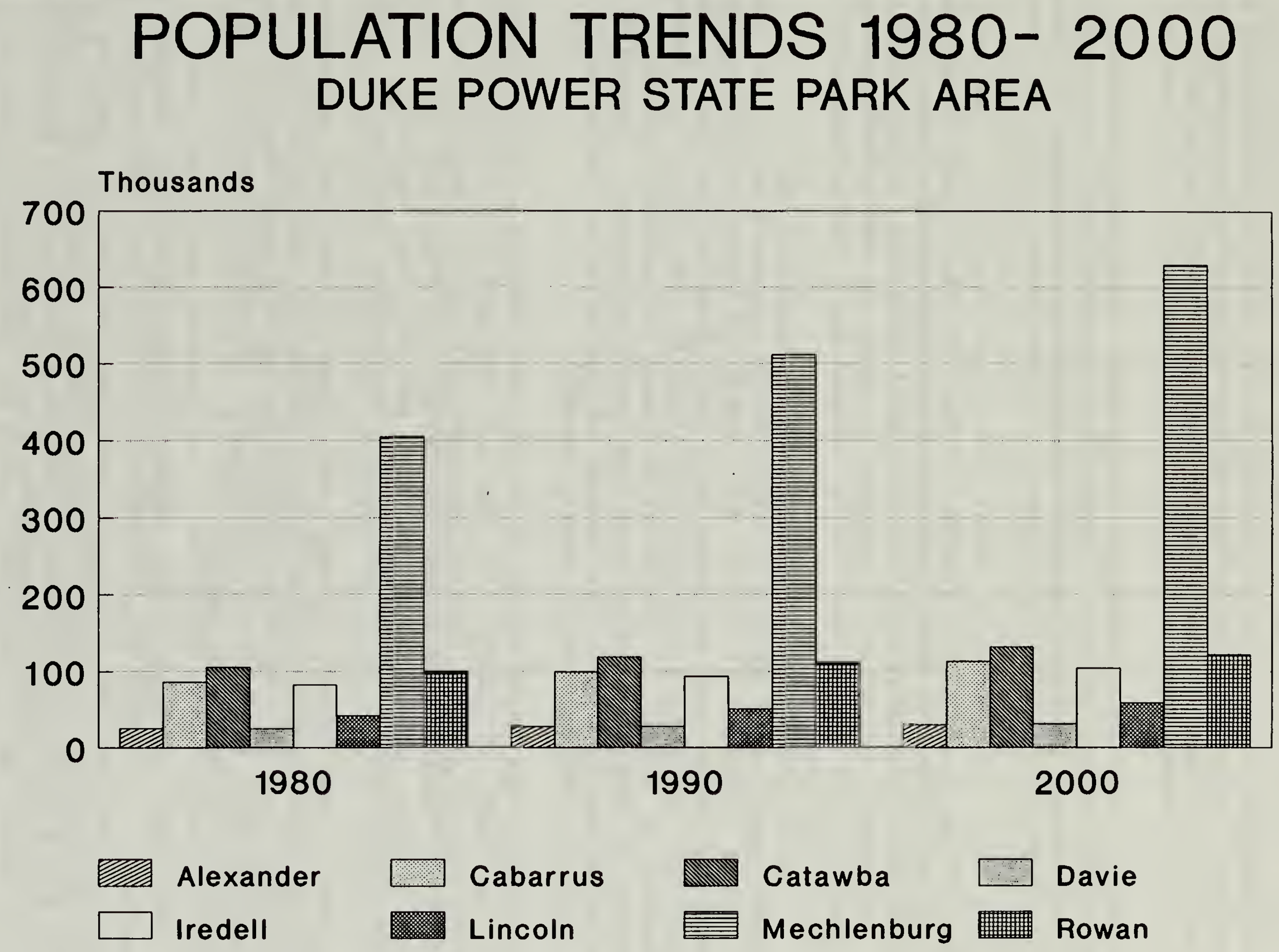

Figure IV- 4.DUPO Area Population Trends

Although growth rates for Iredell County reflect a slightly higher rate than that of the state as a whole, the area of Iredell County near Duke Power State Park is growing faster than any other area of the county. Student population growth rate projections by the local school system are much higher than the growth rate indicated by the U.S. Census Bureau.

According to the Office of State Budget and Management, outside of catastrophic events such as a depression or outbreak of a rapidly spreading incapacitating disease, the single most influential force affecting the need for state services is the growth and shifts in population.

The continuing population growth in the counties comprising Duke Power State Park's primary service areas and the state as whole suggests that visitation at the park will continue to increase as well. If park visitation continues to grow in the 1990's at the same rate it grew during the 1980's, annual park visitation will be 381,872 in the year 2000.

Statewide, population shifts in various age segments will also take place. Over the past 10 years, the number of women in their prime childbearing years has declined with the aging of the 1940's baby boomers, and the result has been a decline in the number of births. The number of women in their late teens to middle thirties is projected to change little over the next 20 years. Assuming a stable childbearing rate, the number of children in the newborn to four-year-old category will remain stable.

Public-school-age population (5 to 17) has declined significantly during the past 10 years. It has now reached a plateau that is expected to continue. The college age (18 to 24) population has declined in recent years and is likely to continue its small decline before stabilizing at the end of the century. The percentage of the 18-to-34 population started to decline in 1990.

In contrast, the growth in the middle-age and elderly population during the next 20 years is a virtual certainly, thanks to the baby boom of the 1940's. The fastest-growing age segment over the next two decades will be the over-85 segment, followed by the 75-to-84 and then the 65-to-74 segments.

Over the past 10 years, the elderly population has become an increasingly vital political force. For the short-term future, it is anticipated that the growing elderly population will confine its demands primarily to health, nursing homes, activities of daily living, and protective services. Numerous surveys have shown these to be among the primary concerns of the elderly.

While shifts in population age groups are particularly significant in school and some social programs, it is not thought that these age-group changes that will be taking place will have a significant effect on Duke Power State Park over the next five to 10 years. Over a longer period of time, as the elderly population grows, demand for improved services and facilities catering to this age group can be expected.

INTERPRETATION AND ENVIRONMENTAL TRENDS

Attendance at formal and informal interpretive programs has been increasing at Duke Power State Park over the past four years. According to the park superintendent, the public seems to be increasingly interested in interpretive programs.

Formal environmental education attendance figures over the past four years have varied significantly. Starting in 1991, environmental education attendance consisted only of school groups. Before 1991, environmental education figures were higher due to misunderstandings of what constituted an environmental education program. Environmental education programming has also been dropping off due to cutbacks in school budgets, a factor that has resulted in fewer school groups travelling to the park. Interpretation and environmental education figures for the past four years are shown below.

	Environmental Education	Interpretation	Total
1988	326	1687	2013
1989	1296	4223	5519
1990	904	4148	5052
1991	639	5712	6351

OUTDOOR RECREATION PARTICIPATION IN NORTH CAROLINA

The five most popular outdoor recreation activities in North Carolina are walking for pleasure, driving for pleasure, viewing scenery, beach activities, and visiting historical sites. Three out of every four households participated in walking for pleasure at least once in the past 12 months (Table IV-1). In addition to the five most popular activities, over fifty percent of the households responding to a 1989 survey participated at least once in the following activities: swimming (in lakes, rivers, or oceans), visiting natural areas, picnicking, attending sports events, visiting zoos, and freshwater fishing.

The North Carolina Outdoor Recreation Participation Survey was mailed to 3,100 randomly selected residents in the spring of 1989. Forty-five percent, or 1,399 people, returned completed surveys. Each person receiving the survey was asked to estimate the number of times the members of his household had participated in each of 43 activities.

Table IV-1. Outdoor recreation activities ranked by popularity.

Rank	Activity	Percentage of Households Participating
1.	Walking for Pleasure	75%
2.	Driving for Pleasure	72
3.	Viewing Scenery	71
4.	Beach Activities	69
5.	Visiting Historical Sites	62
6.	Swimming (in Lakes, Rivers, and Oceans)	54
7.	Visiting Natural Areas	53
8.	Picnicking	52
9.	Attending Sports Events	52
10.	Visiting Zoos	51
11.	Fishing - Freshwater	50
12.	Use of Open Areas	41
13.	Swimming (in Pools)	40
14.	Fishing - Saltwater	38
15.	Attending Outdoor Cultural Events	35
16.	Bicycling for Pleasure	32
17.	Other Winter Sports	31
18.	Camping, Tent or Vehicle	29
19.	Softball and Baseball	28
20.	Hunting	28
21.	Use of Play Equipment	28
22.	Power Boating	26
23.	Trail Hiking	26
24.	Jogging or Running	24
25.	Basketball	24
26.	Nature Study	22
27.	Golf	22
28.	Target Shooting	20
29.	Water Skiing	19
30.	Camping, Primitive	14
31.	Tennis	14
32.	Use Motorcycles, Dirt Bikes, ATV's	13
33.	Use Four Wheel Drive Vehicles	13
34.	Canoeing and Kayaking	13
35.	Horseback Riding	12
36.	Volleyball	12
37.	Downhill Skiing	12
38.	Football	11
39.	Soccer	7
40.	Sailboating	7
41.	Skateboarding	6
42.	Cross Country Skiing	2
43.	Windsurfing	1

The survey results provide good insight into the current participation of North Carolinians in a wide range of outdoor recreation activities. The most popular activities can be determined by identifying the activities in which the highest percentage of the population participates. The survey results can also identify leisure activities that are important parts of daily routine. These regular activities are ones that respondents report participating in many times during the year.

PRIORITIES OF PUBLIC OUTDOOR RECREATION FUNDING

The North Carolina Outdoor Recreation Survey asked residents a series of questions in order to identify and rank future demand for public outdoor recreation. Future demand was determined by asking them which activities they would have tried more often had adequate facilities been available. Respondents were then asked to rank these activities in order of importance. A scoring system was used assigning each activity a rating of high, moderate or low future demand based on the survey results.

In the second part of the analysis, the respondents' level of support for publicly funded outdoor recreation activities was determined by asking them to identify and rank those activities to which government should give highest priority when spending public money. The same scoring system used to analyze unmet demand was then applied to the survey results, with each activity receiving a high, moderate or low rating in public support for public funding.

In the final part of the needs analysis, the two ratings for each activity were combined to produce a score of one to nine that reflected both future demand and public funding priorities. The activities that ranked high in both future demand and support for public funding received the highest priority in the needs assessment. Support for public funding was given higher priority than expressed demand (Table IV-2).

Based on this analysis, many of the activities rated as the highest priorities are activities that are currently or could potentially be provided at Duke Power State Park. The activities include walking for pleasure, tent or vehicle camping, picnicking, freshwater fishing, beach activities, visiting natural areas, viewing scenery, and trail hiking (Table IV-2).

Table IV-2. Priorities for Future Outdoor Recreation Activities

Activity	Code	Future Demand	Support for Public Funding
Walking for Pleasure	1	High	High
Camping, Tent or Vehicle	1	High	High
Picnicking	1	High	High
Beach Activities	1	High	High
Fishing - Freshwater	1	High	High
Attend Outdoor Cultural Events	1	High	High
Visiting Natural Areas	2	High	Moderate
Use of Play Equipment	2	High	Moderate
Visiting Zoos	2	High	Moderate
Visiting Historical Sites	2	High	Moderate
Bicycling for Pleasure	3	Moderate	High
Swimming (in Pools)	3	Moderate	High
Viewing Scenery	4	Moderate	Moderate
Hunting	4	Moderate	Moderate
Trail Hiking	4	Moderate	Moderate
Use of Open Areas	4	Moderate	Moderate
Target Shooting	4	Moderate	Moderate
Swimming (Lakes, Rivers, Ocean)	4	Moderate	Moderate
Fishing - Saltwater	4	Moderate	Moderate

V. SUMMARY OF LAWS

GUIDING PARK MANAGEMENT

There are many federal and state statutes, state and federal executive orders, and administrative rules and policies that govern the operation of the state parks system. A thorough listing and discussion of these will be available in the Systemwide Policies Manual, which is under development.

This chapter includes a brief discussion of the primary legal basis for the existence and operation of the state parks system.

NORTH CAROLINA CONSTITUTION

Article XIV, Section 5, of the North Carolina Constitution sets overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The amendment reads in part as follows:

> *It shall be the policy of this State to conserve and protect its lands and waters for the benefit of all its citizenry, and to this end it shall be a proper function of the State of North Carolina and its political subdivision to acquire and preserve park, recreation, and scenic areas, to control and limit the pollution of our air and water, to control excessive noise, and in every other appropriate way to preserve as a part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open land, and places of beauty.*

STATE LAWS

STATE PARKS ACT

The State Parks Act (G.S. 113-44.7 through 113-44.14) sets forth a mission statement for the state parks system. It states that the system functions to preserve and manage representative examples of significant biologic, geologic, scenic, archaeologic, and recreational resources, and that park lands are to be used by the people of the state and their visitors and descendants in order to promote understanding of and pride in the state's natural heritage.

The State Parks Act also calls for development and periodic revisions of a System Plan to achieve the mission and purpose of the state parks system in a reasonable, timely, and cost-efficient manner. The Act describes System Plan components and requires that public participation be a component of plan development and revisions.

The State Parks Act also calls for the classification of park resources and development of general management plans (GMPs) for each park. GMPs are to include a statement of park purpose, an analysis of major resources and facilities, and a statement of management direction.

POWERS AND DUTIES OF THE DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES

This act authorizes the Department to make investigations of the resources of the state and to take such measures as it may deem best suited to promote the conservation and development of such resources. The Act also authorizes the Department to care for state forests and parks and other recreational areas now owned, or to be acquired by the state. (G.S. 113-8)

STATE NATURE AND HISTORIC PRESERVE DEDICATION ACT

The State Nature and Historic Preserve Dedication Act (G.S.143-260.6) was authorized by Article 14, Section 5, of the North Carolina Constitution. It seeks to ensure that lands and waters acquired and preserved for park, recreational and scenic areas for the purpose of controlling and limiting the pollution of air and water, controlling excessive noise, and in every other appropriate way preserving as a part of the common heritage of the state, continue to be used for those purposes. The State Nature and Historic Preserve therefore provides a strong legal tool for protecting lands from incompatible uses.

The addition and removal of lands to and from the State Nature and Historic Preserve require a law enacted by a vote of three-fifths of the members of each house of the General Assembly.

All of Duke Power State Park as of April 4, 1989 (the entire park as it now exists) is in the State Nature and Historic Preserve.

NORTH CAROLINA ENVIRONMENTAL POLICY ACT OF 1971

Recognizing the profound influence that man's activity has on the natural environment, the General Assembly passed the Environmental Policy Act *"to assure that an environment of high quality will be maintained for the health and well-being of all..."*

The Act declares that:

> *It shall be the continuing policy of the State of North Carolina to conserve and protect its natural resources and to create and maintain conditions under which man and nature can exist in productive harmony. Further, it shall be the policy of the State to seek, for all its citizens safe, healthful, productive, and aesthetically pleasing surroundings; to attain the widest possible*

> *range of beneficial uses of the environment without degradation, risk to health or safety; and to preserve the important historic and cultural elements of our common inheritance. (G.S. 113A-3)*

While there are other General Statutes that concern the state parks system and the environment, the above-described statutes, along with Article XIV, Section 5, of the North Carolina Constitution, largely define the purposes of the state parks system and serve to guide the operation of state park system units.

FEDERAL LAWS

LAND AND WATER CONSERVATION FUND ACT OF 1965

The federal Land and Water Conservation Fund Act (PL 88-578) offers protection and places restrictions on fund-assisted outdoor recreation areas.

By virtue of receiving Land and Water Conservation Fund (LWCF) grant assistance, most of the state parks system, including all of Duke Power State Park that existed at the time of grant assistance in 1981, is subject to LWCF rules and regulation. Property acquired or developed in whole or in part with LWCF assistance cannot be converted to other than public outdoor recreation use without federal approval. A conversion may only take place if approved by the secretary of the Interior, and only then if replacement property of equal fair market value and reasonably equivalent usefulness and location is made.

LWCF requirements include: programming, operating and maintaining areas in a manner that encourages public participation; maintaining the property so it appears attractive and inviting to the public; maintaining property, facilities and equipment to provide for public safety; keeping facilities, roads, trails and other improvements in reasonable repair throughout their lifetime to prevent undue deterioration and encourage public use; keeping the park and facilities open for use at reasonable hours and times; and making future development meet LWCF rules and regulations. LWCF-assisted sites are periodically inspected by state and federal inspectors to ensure compliance with LWCF requirements.

DUKE POWER MASTER PLAN

A master plan for Duke Power State Park was completed in 1974. The master plan was developed to serve as a guide for preservation and sequential development of the park based on optimum public use. The plan was based on an ecological and resource analysis of the land by assessing its potential to sustain intense recreational development and by an analysis of visitor needs for recreational facilities.

The master plan recognized that significant additional acreage would be needed to develop a viable recreation area and recommended that approximately 2,000 additional acres be acquired. Less than 50 acres have been.

The master plan still serves to guide overall park development. During the general management plan process, the existing master plan was reviewed to determine if master plan proposals are still valid or if modifications are needed. Changes to proposed master plan development are detailed in Chapter VII. Land acquisition needs are discussed in Chapter IX.

DEED RESTRICTIONS

Duke Power Company donated 1,328 acres to the state in August of 1962 upon the condition that the land *"...shall be used and maintained by the State of North Carolina as a state park named 'Duke Power State Park' to which the public shall be admitted without charge."* The deed contains a reverter clause in case these conditions are not met.

The deed was modified in 1983 to allow reasonable user fees *"...consistent with the primary use of the property as a recreation park."*

VI. NATURAL AND CULTURAL RESOURCE MANAGEMENT

NATURAL RESOURCE MANAGEMENT POLICY

The Division of Parks and Recreation's approach to natural resource management is directed by the North Carolina Constitution and the State Parks Act, both of which require the management of natural resources. The constitution sets overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The State Parks Act states that unique archaeological, geological, biological, scenic, and recreational resources are a part of the heritage of the people, which "...should be preserved and managed by those people for their use and for the use of their visitors and descendants."

The North Carolina State Parks System plays an important role in maintaining, rehabilitating, and perpetuating the state's natural heritage. The natural resources of the state parks system are: high quality, rare or representative examples of natural communities; native plants and animals; geological features and landforms; water resources; and the natural processes that affect these elements. The primary objective in natural resource management will be the protection of natural resources for their inherent integrity and for appropriate types of enjoyment while ensuring their availability to future generations.

It is the policy of the Division that natural resources will be managed by allowing natural environments to evolve through natural processes with minimal influence from human activities. Resource management will not attempt solely to preserve individual species or individual process; rather, it will try to maintain all the components and processes of naturally evolving ecosystems. When intervention is necessary, direct or secondary effects on park resources will be minimized to the greatest extent possible. Intervention with natural processes may occur:

1) to correct or compensate for the disruption of natural processes caused by human activities;
2) to protect, restore, or enhance rare species;
3) to protect, restore, or enhance significant archaeological resources;
4) to construct, maintain, improve, or protect park facilities; and
5) to prevent danger to human health and safety.

NATURAL COMMUNITIES

The communities described below follow the Classification of the Natural Communities of North Carolina: Third Approximation (Schafale and Weakley, 1990).

DRY OAK--HICKORY FOREST (PIEDMONT UPLAND VARIANT)

The Piedmont Upland variant has been described as the most typical variant of the Dry-Oak Hickory Forest. Although this community is still relatively common in the Piedmont, examples of significant size and good quality are extremely rare. Unfortunately no large examples exist in the park. The park supports several small, high quality remnants, however, especially on the two islands on Lake Norman. Additional high quality examples of this community are also found in the northwestern sector of the park.

The Dry Pine Variant of this community type may have been present historically on some of the steeper south- or west-facing slopes. Canopy dominants included shortleaf pine (Pinus echinata) or Virginia pine (P. virginiana), white oak (Quercus alba), post oak (Q. stellata), blackjack oak (Q. marilandica), and southern red oak (Q. falcata). Topography, geology, the frequency of these two pines in the park, and the very small remnants of what appear to be this variant support this hypothesis.

DRY-MESIC OAK--HICKORY FOREST

This community type was once predominant in the Piedmont. The park has multiple examples and at least three relatively high-quality examples. The peninsula at the southern end of the park near the campground has a high quality example of approximately 17 to 20 acres. Eight species of oak are present, with many individuals over 20 inches in diameter, and at least 15 other hardwood species of varying sizes and ages are present in the canopy and subcanopy. Given the park's varying exposures and slopes, it is not surprising that this community grades between Mesic Mixed Hardwood Forest and Dry-Mesic Oak-Hickory Forest. With these topographic variations, the herb layer is somewhat richer than is often found and includes Catesby's trillium (Trillium catesbaei), purple toadshade (T. cuneatum), dwarf iris (Iris cristata) and may-apple (Podophyllum peltatum). Other notable examples of this community type are found on the two islands in Lake Norman and in the northwestern sector of the park.

MESIC MIXED HARDWOOD FOREST (PIEDMONT SUBTYPE)

This community type is found on several north-facing slopes within the park. The best example occurs on a north-facing bluff on a small tributary of Norwood Creek above the park lake. The canopy is dominated by beech (Fagus grandifolia) up to 20" diameter, with a mixture of other hardwoods including northern red oak (Quercus rubra) up to 17" diameter, red maple (Acer rubrum), mockernut hickory (Carya alba) up to 18" diameter, and pignut hickory (C. glabra). There is one large white pine (Pinus strobus, 16" diameter) and numerous seedlings and saplings, suggesting that white pine was once a major component in at least part of the area prior to logging. Understory trees include dogwood (Cornus florida), sourwood (Oxydendrum arboreum) up to 10" diameter, American holly (Ilex opaca), and black gum (Nyssa sylvatica) up to 8" diameter. The shrub layer includes widely scattered large mountain laurel (Kalmia latifolia, up to 25 feet tall), spicebush (Lindera benzoin), strawberry bush (Euonymus americana), dwarf hazelnut (Corylus cornuta), downy arrowwood (Viburnum rafinesquianum), wild hydrangea (Hydrangea arborescens), and dry upland blueberry (Vaccinium pallidum). Although the herb layer is sparse, it is diverse and includes giant starwort (Stellaria pubera), little heartleaf (Hexastylis minus), windflower (Thalictrum thalictroides), round-lobed hepatica (Hepatica americana), perfoliate bellwort (Uvularia perfoliata), Christmas fern (Polystichum acrosticoides), and fly-poison (Amianthium muscaetoxicum). The community grades into Dry-Mesic Oak--Hickory Forest and Successional Pine--Mixed Hardwood Forest on the ridge and floodplain communities below. In the west end of the park, the community contains a small cove with black walnut (Juglans nigra) and cherrybark oak (Q. pagoda) near the base of the slope, and a denser shrub layer.

PIEDMONT/COASTAL PLAIN HEATH BLUFF

Although less than two acres in size, this community type is well developed on a steep, rocky northwest and west-facing bluff on the east side of Hicks Creek. The community is dominated by mountain laurel with occasional common wild azalea (Rhododoendron periclymenoides). The scattered canopy trees include shortleaf pine (up to 20" diameter), southern red oak (up to 18" diameter), chestnut oak (Quercus montana, up to 11" diameter), post oak (up to 8" diameter), and scarlet oak (up to 13" diameter). Sourwood (up to 10" diameter), dogwood, red cedar (Juniperus virginiana), American holly, and downy serviceberry (Amelanchier arborea) are scattered in the understory. Aside from a substantial trailing arbutus (Epigaea repens) population, the herb layer is quite sparse.

On the gentler north-facing slopes, the community grades into Dry-Mesic Oak--Hickory Forest and Mesic Mixed Hardwoods. The small mesic cove to the east contains a small population of highland doghobble (Leucothoe fontanesiana). The ridgetop grades into Dry Oak--Hickory Forest and Successional Pine--Mixed Hardwood Forest.

PIEDMONT/LOW MOUNTAIN ALLUVIAL FOREST

This community type occurs sporadically along the upper reaches of Hicks Creek and Norwood Creek as well as on some of the smaller streams and tributaries. Many of these areas show signs of recent human disturbance, especially logging, and no mature examples were found. However, there are small areas of relatively high quality in several locations. River birch (Betula nigra), sycamore (Platanus occidentalis), green ash (Fraxinus pennsylvanica), tuliptree (Liriodendron tulipifera), and sweet gum (Liquidambar styraciflua) are fairly constant species in the canopy, with a diverse mixture in the lower strata. Upstream erosion and siltation as well as invasive exotic species are major factors in many of the floodplain communities. Even with these limitations, however, there is potential for finding special plant and animal species in many of these areas.

PIEDMONT MONADNOCK FOREST

Although it only a little more than ten acres in size, the example of this community type in the park is a high quality one. Chestnut oak is the canopy dominant on the quartzite ridge which is part of the northern extension of the Kings Mountain Belt. The largest specimen (24" diameter) was blown down by Hurricane Hugo in 1989, but other trees in the 16-20" range remain. Many of the canopy trees have multiple trunks, suggesting stump sprouts. There are also a few old hardwood and shortleaf pine stumps, but there is no evidence of clear-cutting. Unlike the surrounding Successional Pine Forest which is dominated by Virginia pine, most of the pines on the ridge are shortleaf and generally larger (up to 12" diameter). The north and northwest facing slopes of the ridge are dominated by mountain laurel in the shrub layer, while the west facing slope is dominated by common wild azalea. The top of the ridge has a sparse shrub layer with a mixture of species, including deerberry (Vaccinium stamineum) and dry upland blueberry.

PIEDMONT/MOUNTAIN BOTTOMLAND FOREST

Most of this community type was destroyed by the flooding of Lake Norman. Intact bottomland forests are among the rarest of communities in North Carolina, and it is likely that only remnants remained on the Catawba River prior to the creation of Lake Norman. Thus, only very small remnants primarily associated with other community types remain as reminders of vanished resources and diversity.

PIEDMONT/MOUNTAIN LEVEE FOREST

Only remnants of this community type exist on the upper reaches of Norwood Creek, primarily due to continued siltation and sedimentation. Dominant canopy species include river birch, sycamore, and box elder (Acer negundo); cherrybark oak, tuliptree, and green ash are also present.

SUCCESSIONAL/EMERGING WETLAND COMMUNITIES (NOT LISTED)

These are a series of communities characterized by shoreline erosion around Lake Norman and the swimming lake, and siltation and sedimentation where streams empty into the lake. The dynamics of these communities typically involve human activities or interference in natural processes, and thus they should not be characterized as natural communities. These areas may develop into natural communities over time, however, and some may already have components of natural communities but are too small or transitional to be classified.

SUCCESSIONAL PINE FOREST (NOT LISTED) AND SUCCESSIONAL PINE--MIXED HARDWOOD FOREST (NOT LISTED)

Much of Duke Power State Park consists of these two community types which are the result of past logging/clear-cutting and human use of the land. Virginia pine is the dominant in many of these areas, mixed with or replaced by shortleaf pine in others. Some areas do have mixed hardwoods of varying size (up to 12-14" in diameter) and quality, mostly oaks, hickories, red maple, and sweet gum.

Most of the tract on the east side of Hicks Creek included in the master plan was logged and replanted in loblolly pine (Pinus taeda) in recent years. One block is less than ten years old, and the other is probably about 15 years old. Severe erosion has occurred in some areas in and around these plantations. Growth of the pines indicates above average soils except in the highly eroded areas, where trees are quite stunted.

NATURAL HERITAGE PROGRAM ELEMENT OCCURRENCES

No rare plant species have been found in the park to date, and few are known from the immediate vicinity. Human-caused disturbance, including logging, agriculture, and residential development around Lake Norman, and the creation of Lake Norman, have altered habitat for many species.

Several of the park's less disturbed communities, particularly the two islands, the Mesic Mixed Hardwood Forest, the Piedmont Monadnock Forest, and the Piedmont/Coastal Plain Heath Bluff communities, could yield rare species with a more thorough inventory. Some of the successional wetland communities, especially on the upper reaches of the swimming lake, may also yield rare species.

COOPER'S HAWK (Accipter cooperii)

This species has been assigned Special Concern status by the Wildlife Resources Commission, meaning that the species warrants monitoring. Cooper's hawks are year-round residents in and around the park. The last confirmed nesting in the park was in 1989. Diminishing forests and encroaching development appear to be reducing this species' habitat.

SHARP-SHINNED HAWK (Accipter striatus)

This species has been assigned Significantly Rare status by the Natural Heritage Program, meaning that although it is not presently considered threatened or endangered, it is need of monitoring. Although sharp-shinned hawks are frequent visitors to the park on a year-round basis, nesting in the park has not been documented. Diminishing forests and encroaching development appear to be reducing appropriate habitat for the species.

BLACK VULTURE (Coragyps atratus)

This species has been assigned Special Concern status. Black vultures are sighted fairly frequently in the park, but turkey vultures (Cathartes aura) are much more common. Black vultures have been reported nesting in the park in the past, primarily in old buildings.

BLACK BEAR (Ursus americanus)

Although this animal has Significantly Rare status, it is also classified as a game species and therefore by law cannot be listed for state protection as Threatened, Endangered, or Special Concern. The only reported sighting of a black bear in the park was in 1988. Park staff reports numerous sightings prior to that time. Potential habitat for the species is continually shrinking as a consequence of development.

REGISTERED NATURAL HERITAGE AREAS

Duke Power State Park currently has no Registered Natural Heritage Areas.

POTENTIAL REGISTERED NATURAL HERITAGE AREAS

Mesic Mixed Hardwood Slopes and Bottomlands/Wetlands: The relatively high quality and diversity of the plant communities in this area above the park lake on Norwood Creek merit consideration for registry. The area has potential for rare animal populations, such as the four-toed salamander. This area has potential for use in interpretation and education.

Northern Island on Lake Norman: This island supports high quality Dry Oak--Hickory and Dry-Mesic Oak--Hickory Forests; it also supports limited Mesic Mixed Hardwood Forest. Although even-aged, these communities are diverse and relatively mature, with canopy species ranging from 21 to 24" in diameter. The herb layer includes large populations of Catesby's trillium, purple toadshade, and may-apple.

Southern Island on Lake Norman: This island has high quality Dry Oak--Hickory and Dry-Mesic Oak--Hickory communities that support numerous large, mature trees, including a 32" diameter scarlet oak (Quercus coccinea), a 28" diameter chestnut oak, and several white oaks over 20" in diameter. Species diversity is high in all strata and the south and southwestern facing slopes have a strong graminoid component not seen elsewhere in the park. The island is dissected by a powerline right-of-way, producing the expected disturbance species; otherwise the overall quality of the communities is high.

Dry-Mesic Oak--Hickory Forest: The peninsula at the extreme southern end of the park supports a Dry-Mesic Oak--Hickory Forest of high quality. In spite of significant disturbance by Hurricane Hugo, there are numerous white oaks greater than 18" in diameter, as well as a 20" post oak, a 23" beech, a 25" black oak (Q. velutina), a 33" red oak, and 19" scarlet oak. The ridgetop grades into Dry Oak--Hickory Forest with an increased shortleaf pine component. Overall the diversity is high for this community type.

Piedmont Monadnock Forest: Although not very large in size, the quality and uniqueness of this community in the park and immediate area warrant registry. The size of the area limits the potential for rare species, but does not preclude that possibility.

Piedmont/Coastal Plain Heath Bluff: This is a relatively small community on the eastern side of the park, but is unique within the park and of high quality. It grades into Dry Oak--Hickory Forest community that may have included a Dry Pine Variant prior to human disturbance.

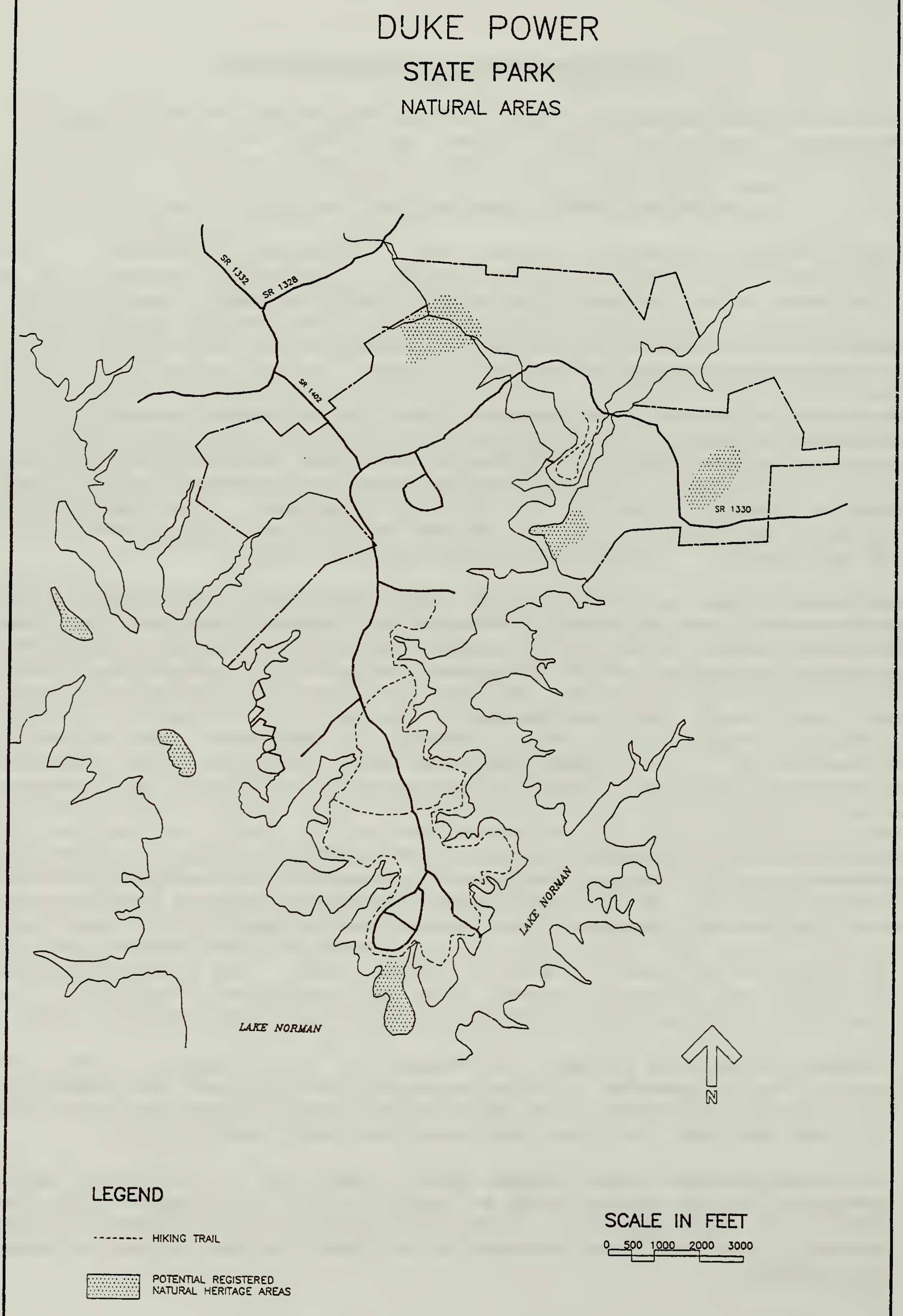

Figure VI-1. Duke Power State Park Natural Areas

RESOURCE MANAGEMENT ISSUES

CULTURAL RESOURCES

Native Americans used the area now known as Duke Power State Park. Prehistoric projectile points and flakes, as well as evidence from early, non-native settlers, have been found in several areas of the park. A comprehensive historical background survey is lacking for this park, and any ground-disturbing activities will need archaeological review.

WATER QUALITY

The water quality of the park lake is affected by land use activities in the Norwood Creek watershed. Sediment and suspended solids in the park lake adversely affect the recreational experiences of park visitors. An engineering study is necessary to determine the sediment loads, particle size, and retention times for the park lake and develop options to resolve this issue. Moving the swimming area from the park lake to the main body of Lake Norman may be needed. Division staff will continue to coordinate efforts with local and state government officials to maintain or improve the water quality of the park lake.

BOUNDARY LINES

Surveying to relocate and reestablish three sections of the park boundary is needed to enable park staff to properly monitor the boundary for any encroachments.

NATURAL HERITAGE INVENTORY

A detailed, comprehensive natural heritage inventory is needed for the park's plant and animal species. These inventories would form the baseline line data necessary for a natural resource monitoring program and could be invaluable for I&E (interpretation and education) programming.

HURRICANE DAMAGE

Hurricane Hugo (1989) left many downed trees and other timber damage in the park. Hazard trees near facilities have been cut or removed. A prescribed fuel reduction burn near the group camp is planned to reduce the fire hazard. Remaining trees and branches may pose a minor fire hazard, but in the three years since the hurricane much of the fine fuel has decomposed. The impact of removing standing dead trees near trails on the natural communities in this park needs to be investigated further.

The resource management program staff will investigate the area as part of the development of a resource management guideline for dead and/or hazard trees. The implementation of a hazard tree inspection standard and its impact on the natural communities is a systemwide concern. Park staff should continue to implement the existing standard until the topic is addressed and/or revised through a resource management guideline.

FIRE MANAGEMENT

The fire ecology of the Piedmont is very poorly understood and the natural fire regime of the park is unknown. Research on this topic would help to determine the needed for an ecological prescribe burn program in this park. Fuel reduction prescribed burns for protection of facilities and visitor safety may be done.

FOREST PESTS

Historically, southern pine beetles have infected areas of the park in the past. Currently, Ips beetles have infested some trees. However, their impact on the forest is a natural process and should be allowed to continue. The practice of removing standing dead trees around facilities and high public use areas should be continued. The park staff has been implementing the danger tree policy well.

RESOURCE MANAGEMENT PLAN

A comprehensive, park specific resource management plan addressing these and future issues and other resource management issues should be developed. This plan should include detailed actions whose implementation will prevent or correct threats to the park's natural resources. The addition of district resource management specialists would facilitate the development of this plan.

VII. PHYSICAL PLANT INVENTORY

FACILITY INVENTORY AND INSPECTION PROGRAM

The buildings in state parks are needed for park operations and visitor services. These buildings and facilities are essential components of protecting the public's health and safety. They include facilities providing safe drinking water, restrooms, and electricity, as well as recreation facilities such as bathhouses, group camps, and cabins. Without proper maintenance, these facilities are, at best, a disservice to the citizens who use them, and at worst, potentially harmful.

The Facility Inventory and Inspection Program (FIIP) is a computer-based system used to track the condition, maintenance needs, and repair costs of every building in the state parks system. A principal objective of FIIP is to identify deficiencies that may affect health, fire, or life safety. Other objectives are to identify accessibility deficiencies and other significant maintenance-related deficiencies.

During a field evaluation of each facility, deficiencies are given priority ratings of critical, serious, or minor. The deficiencies are classified in nine basic categories: site (the grounds and walkways surrounding the building); exterior envelope; interior envelope; fire/life safety; handicapped accessibility; public health; heating/ventilation/air conditioning (HVAC); plumbing; and electrical.

The field evaluation begins with an inventory of all structures in the park. The results of the inventory are presented using the building name and state property numbers as identification. Next, the types of repairs and repair costs are listed for each building. Finally, the cost summary for the park is given using the nine basic categories of repairs (e.g. exterior envelope) and the three levels of deficiencies (critical, serious, and minor).

DUKE POWER STATE PARK BUILDING INVENTORY

CODE	BUILDING NAME	IN USE
015001	Refreshment Stand	Y
015002	Bathhouse	Y
015003	Sun Shelter	Y
015004	Washhouse	Y
015005	Wood Shed	Y
015006	Wood Shed	Y
015007	Barracks	Y
015008	Workshop	Y
015009	Well House	Y
015010	Residence	Y
015011	Clarke House	N
015012	Office	Y
015013	Warehouse	Y
015014	Toilet Building	Y
015015	Clarke House Smoke House (Log)	N
015016	Corn Crib (Log)	N
015017	Grainery	Y
015018	Stables	Y
015019	Elec. Shed	Y
015020	Toilet Bldg. at Boat Docks	Y
015021	Well House	Y
015022	Storage Cover at Old Barracks	N
015023	Ranger Residence	Y
015024	Lumber Shed	Y

DUKE POWER STATE PARK
FACILITY REPAIR NEEDS

Buildings at Duke Power are in fair condition: all need some repairs, but most are structurally sound. Exceptions are the old barracks and its storage shed, and all buildings on the old Clarke property. These exceptions are recommended for demolition. In addition, two buildings need work totalling over $10,000 each. Parkwide, most of the work consists of small-to-medium size projects that could be done in-house at a considerable savings if money is available for materials and a maintenance mechanic position is created to undertake skilled repairs.

Building locations are shown in Figure VII-1.

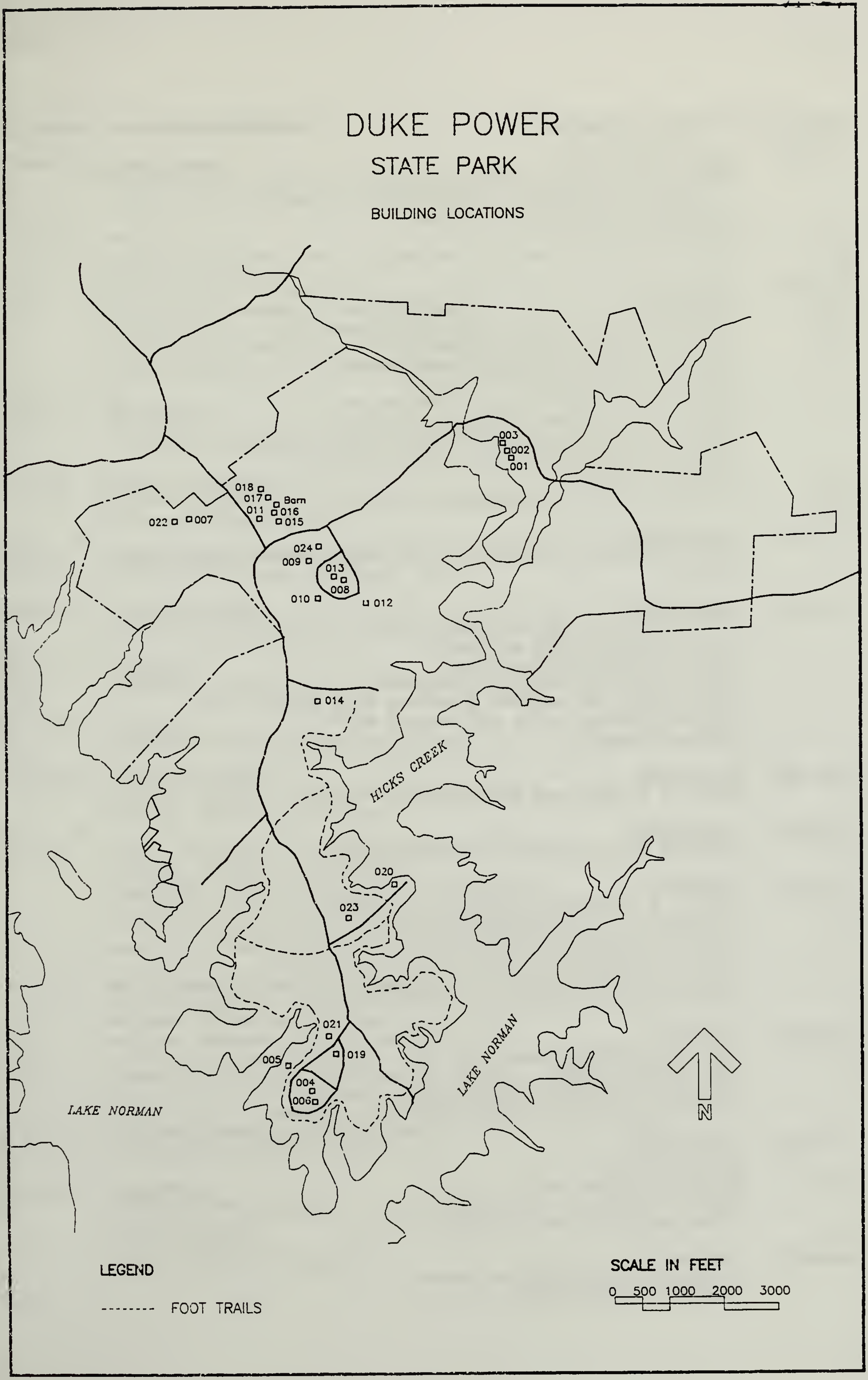

Figure VII-1. Building Locations

Bldg#	Building Name/Need	Demolition Cost	Repair Cost
015-001	**Concession Stand**		$ 5,744
	Replace damaged exterior doors (2); repaint remaining as required		450
	Provide roof drain or scupper		113
	Provide attic vent		420
	Construct switchback HC access		4,761
015-002	**Bathhouse**		$ 18,102
	Replace rotted stairs in path to men's side		1,248
	Install exit signs in dressing rooms		185
	Install egress signs at dressing room exits		785
	Provide HC parking and access ramps		827
	Construct switchback HC access		2,241
	Provide HC facilities in each bathroom		5,982
	Replace all shower heads and valves		2,520
	Install drain pipe and sidewalks with drains		4,086
	Replace missing globe on light fixture		110
	Repaint soffitt		117
	Provide fire extinguisher in mechanical room		77
015-003	**Sun Shelter**		$ 3,514
	Hire engineer to appraise roof deflections		1,265
	Repaint		2,250
015-004	**Washhouse**		$ 13,358
	Add electrical ground rod		90
	Provide HC parking and paths		2,066
	Replace drinking fountain		900
	Provide HC accessible restrooms		5,982
	Patch slab and replace flooring with quarry tile		3,420
	Remove utility sinks and repair walls		128
	Replace screens		773
015-005	**Wood Shed**		$ 90
	Add 4 X 4 post and double 2 X 10 header		
015-006	**Wood Shed**		$ 225
	Replace felt, shingles and drip edge		
015-007	**Barracks**	$ 5,394	
	Note: A thorough investigation of the barracks has revealed that major renovation work (estimated cost $101,600) would be needed to bring this building up to requirements for a residence. Demolition is therefore recommended.		
015-008	**Workshop**		$ 3,116
	Replace delaminating doors (4)		1,112
	Add burglar alarm		1,500
	Remount gas heater for correct clearance		338
	Repaint cracks in foundation wall; repaint		168
015-009	**Well House**		$ 2,629
	Replace door		278
	Stain exterior trim		93
	Replace roof		1,971
	Widen path and add gravel		287
015-010	**Residence**		$ 2,670
	Regrade and provide drainage		120
	Refinish wood floors		2,550

Bldg#	Building Name/Need	Demolition Cost	Repair Cost
015-011	**Clark House**	$ 19,500	
	Demolish and clear site (two story house with chimneys)		
015-012	**Office**		$ 8,745
	Replace breaker covers and 3-way switch		143
	Replace flooring		1,051
	Replace door thresholds and sweeps		384
	Provide HC parking, path and ramp		3,152
	Widen door to bathroom, remount grab bars		1,157
	Add drainage at front of building		2,547
	Replace damaged wallboard and repaint		312
015 013	**Warehouse**		$ 129
	Add vent fan and "no smoking" sign to flammable storage room		
015-014	**Toilet Building**		$ 1,426
	Replace roofing, felt and drip edge		1,292
	Replace cracked glass		134
015-015	**Clarke Smoke House (Log)**	$ 1,125	
	Demolish building and clear site		
015-015	**Corn Crib (Log)**	$ 1,326	
	Demolish building and clear site		
015-017	**Grainery**	$ 2,541	
	Demolish building and clear site		
015-018	**Stables**	$ 4,125	
	Demolish building and clear site		
015-019	**Electrical Shed**		$ 353
	Replace shingles, felt, and drip edge		75
	Replace delaminating door		278
015-020	**Toilet Building at Boat Docks**		$ 5,624
	Provide HC parking space		93
	Remount toilet fixtures and accessories to HC accessible heights		1,658
	Re-stucco portions of exterior of building		855
	Repaint trombe wall		3,015
015-021	**Well House at Camping Area**		$ 4,073
	Add fluorescent light		80
	Replace delaminating door		278
	Replace damaged plywood with/Tl-ll; stain siding and trim		281
	Remove tree leaning against building		113
	Rebuild roof		3,323
015-022	**Storage Cover at Old Barracks**	$ 750	
	Demolish and clear site		
015-023	**Residence**		$ 6,867
	Add overhead lights in living room and bedrooms		900
	Add drainage		2,022
	Clean siding and restain		1,656

Bldg#	Building Name/Need	Demolition Cost	Repair Cost
	Repair bifold door		506
	Repair subfloor and replace flooring		1,705
	Replace broken hose bibb		76
	TOTALS	$ 34,761	$ 76,662

DUKE POWER STATE PARK
FACILITY REPAIR NEEDS COST SUMMARY

DEFICIENCY CATEGORY	PRIORITY 1 (CRITICAL)	PRIORITY 2 (SERIOUS)	PRIORITY 3 (MINOR)	CATEGORY SUBTOTAL
SITE	26826	13012	2904	42742
EXTERIOR ENVELOPE	1437	8176	8565	18178
INTERIOR ENVELOPE	1052	3300	10458	14809
FIRE/LIFE SAFETY	15	2469	0	2484
HANDICAPPED ACCESS	0	28498	404	28903
PUBLIC HEALTH	0	0	0	0
HVAC	0	337	0	337
PLUMBING/UTILITY	0	2648	0	2648
ELECTRICAL	75	1137	110	1322
	29405	59576	22441	111422

Deficiencies that are a threat to fire and life safety or the health of an individual are considered to be "critical." A "serious" deficiency is one that is not considered a threat to fire and life safety, but which could cause further damage to the structure if left uncorrected. This category usually includes building code violations. "Minor" deficiencies are those requiring general maintenance and repair.

ROAD AND UTILITY INVENTORY

This inventory describes the existing park infrastructure (roads, water, sewer, electrical, and telephone) and makes general recommendations for upgrading and maintaining these systems. The information is based on a one-day inspection of park facilities on March 24, 1992, with the park superintendent. Other information comes from the Institute for Transportation, Research, and Education's (ITRE) study on roads; original construction drawings; and past experience with construction projects at the park.

The park was developed in the early sixties from land donated by Duke Power Company. Most of the existing facilities were built from 1965 to 1970, including the campground, picnic area and swimming area. Another major capital project was undertaken in 1977-80, consisting of a new park road and bridge connecting the swimming and camping areas into one operational unit. Prior to this construction, it had taken approximately 20 minutes to get to the day-use swimming area from the camping/office side. The project also included a boat launch area and passive solar toilet building.

Very few capital funds have been spent on the park since 1980. Although most of the facilities are in fair shape, they are at the age when they need major renovation or replacement. The road system is in fair to good shape.

This inventory is divided into five major sections: roads and parking areas; water system; sewer system; electrical system; and telephone system. Each section is broken into two parts: existing conditions and system recommendations.

ROADS AND PARKING AREAS

Existing Conditions

According to the Institute for Transportation, Research, and Education (ITRE) study completed in March 1990, there are 4.80 miles of paved roads and .56 miles of unpaved roads (Figure VII-2). There are 17,754 square yards of paved parking lots and 307 square yards of unpaved parking lots. The typical park road section consists of 20-foot wide pavement with 4-foot wide shoulders. The main road has an 8-inch stone base with a 1.5-inch layer of I-2 asphalt. The paved parking lots have an 18-inch curb and gutter with a 6-inch stone base with a 1.5-inch asphalt layer.

The road system is in fair shape since the majority of it was constructed in 1977-78. The picnic and campground road is beginning to show some ravelling and will need to be resurfaced within the next three to five years. The boat launch road has a drainage problem about 100 feet from the entrance on the right side. There is also a need for about eight feet of 18-inch round

DUKE POWER

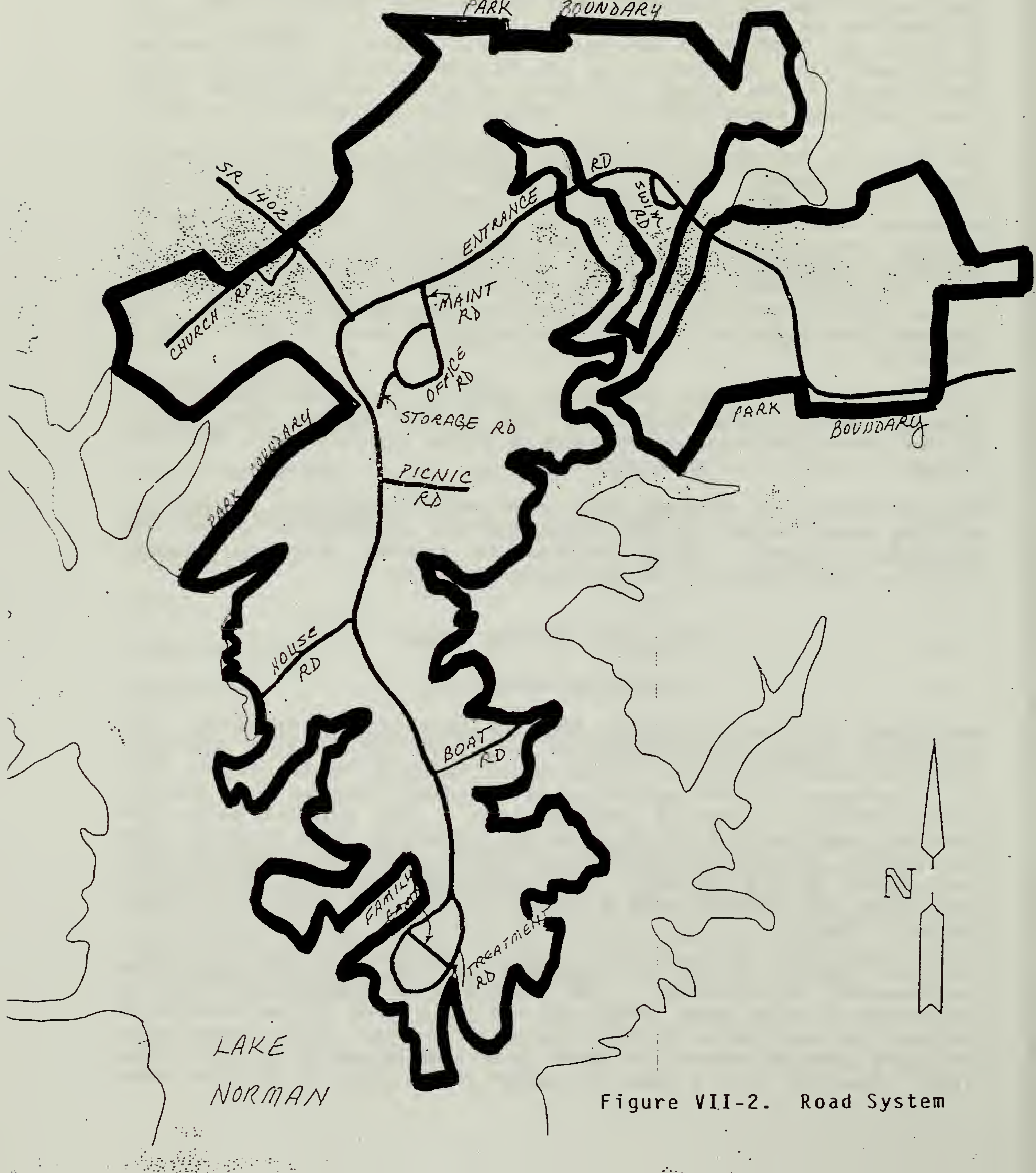

Figure VII-2. Road System

concrete pipe at the entrance to the road. The road shoulders are in fairly good shape, but the ditchline has filled in several places and there are trees growing in the ditchline. Existing culverts should be okay since they are reinforced concrete pipe. The road to the district office has some rutting and a few pot holes, and it needs to be scraped. All bridges appear to be satisfactory. The wooden guard rail needs a metal or asphalt cap on the top of the post to prevent deterioration.

Recommendations

The Department of Transportation (DOT) currently maintains the park road system. The budget was $1,000 for pavement patching and $500 for road grading in 1991-92. This amount needs to be increased next year so additional pavement patching in the campground can be done. The parking lot and road to the district and park office needs paving. Estimated cost is $15,000. This road work can be done within the next two years under the DOT agreement.

The road that turns into the campground needs to be rerouted into a smooth curve. This was designed and scheduled to be done in 1977, but the project was eliminated due to lack of funds. It can be delayed until the main park road needs resurfacing again in about three to five years. The estimated cost is $30,000.

The problem with the boat launch road should be corrected this year under the present DOT budget. Estimated cost to install extra pipe and correct drainage is $2,000. The Division will transfer more money from remaining DOT accounts if this amount is not sufficient to complete the project.

SEWER SYSTEMS

Existing Conditions

There are currently seven active sewer systems and one abandoned sewer system located within the park. They range in size from a 15,000-gallon package treatment plant to a 1,000-gallon septic tank with conventional nitrification lines. The best information available on the different systems follows:

Camping Area Package Treatment Plant - One of two package treatment plants located in the park, it has a capacity of 15,000 gallons per a day and was constructed in 1968. It serves a 33-campsite campground with a washhouse (#015004) and a sewage dump station. Sewage is carried to the treatment plant by 1,020 linear feet of six-inch vitrified clay sewer outfall line. The plant discharges directly into Lake Norman approximately 250 linear feet from the plant. The plant is in very poor shape, with the tank, pumps, blowers, and other components worn out. It has a long history of being out of compliance with the Division of Environmental Management's sewage regulations due to lack of sewage flow into the system. The average flow is only around 1,000 gallons per day during peak usage. The sewage hold tanks are badly corroded and in need of sand blasting and painting. The plant requires a Class II operator and requires over $3,000 a year for permits, chemicals, testing, and other miscellaneous expenses just to keep in operation. The park operator has done an excellent job keeping the plant in compliance for the past two years.

Boat Launch Toilet Building (#015020) Sewer - This system is composed of two 1,500-gallon septic tanks with 600 linear feet of nitrification lines. The nitrification lines consist of a series of concrete block modules, called T & J panels, laid end to end with play sand inside to filter the waste. This system was installed in 1970 and is the only one in the state parks system. It appears to be working satisfactorily. The tanks have never been pumped out.

Ranger Residence (#015023) Sewer - This system has a 1,000 gallon septic tank with three 100-foot drainlines. It was constructed in 1981. The lines appear to be installed deep in the ground. There are no risers on the tank and the tank has never been pumped out.

Picnic Area Toilet Building (#015014) Sewer - This system has a 3,500 gallon septic tank with a 500-gallon single-dosing siphon and ten 175 linear foot drain lines. The system is over designed, for the average flow is less than 100 gallons per a day. The concrete tank is showing signs of spalling. The dosing siphon appears to be working satisfactorily, and the drainfield is well maintained. This system was built in 1968.

Superintendent's Residence (#015010) & Shop Building (#015008) Sewer - This system consists of a 1,200-gallon septic tank with two different drain fields. Because the old system was failing in wet times, a new field was constructed on the south side of the house in 1986. The system can be alternated between the two fields on a monthly basis. The septic tank has a concrete riser on it, but it needs to be replaced with a manhole ring and cover because of the proximity to the driveway. The original system was installed in 1965. The tank has not been pumped in the last six to seven years. There appear to be five 100-foot lines in the new field and four 100-foot lines in the old field. The systems appear to be working satisfactorily.

District & Park Office (#015012) Sewer System - This system was formerly the personnel barrack's sewer system. It consists of a 1,500 gallon septic tank and 500 linear feet of drainfield line. It was constructed in 1975. The tank has no risers. The drainfield is mowed except for a small portion in the back where some trees were blown down by Hurricane Hugo.

Swimming Area Sewer System - This system, built in 1964, was the first package treatment system to be installed in the park system. It consists of 10,000-gallon-per-day extended aeration plants with a tablet-fed chlorinator. The plant discharges directly into Lake Norman about 150 feet from the plant. This system is badly deteriorated, with the metal side pitted and paint chipped off. As in the campground, the plant is over designed for the average daily flow it receives. The average flow of the systems ranges from 100 to 1,500 gallons a day. This system, too, has numerous DEM code violations due to the low flow. The system appears to be working satisfactorily. The sewage treatment plant operator has done an excellent job keeping the system in compliance for the past two years.

The Old Personnel Barracks (#015007, Abandoned) - This system consists of a 900-gallon septic tank with three sewer lines. This system was abandoned when the well dried up about six years ago and was working at that time. There are no risers on the tank. Demolition of the old personnel barracks is recommended.

Recommendations

Camping Area Sewer System - Abandon the use of the package treatment plant and construct a conventional sewer system with a septic tank and nitrification field. A pump tank may have to be installed to pump the sewage to a suitable location. Several sites in the area appear to be suitable. The site should be designed to allow for future expansion of the campground. The estimated cost of this construction is $40,000.

Boat Launch Toilet Building (#015020) Sewer - This system appears to be working satisfactorily. The two septic tanks need to be pumped out and risers installed on tanks. The estimated cost is $1,500.

Ranger Residence Sewer System (#015023) - This system needs an inspection riser, and the septic tank needs to be pumped out. The drainfield is satisfactory. The estimated cost of repair is $500.

Picnic Area Sewer System - This system appears to be functioning satisfactorily. The tank needs some concrete repair work. The siphon bell needs to be checked for proper operation. Estimated cost is $1,000.

Superintendent's Residence (#015010) & Maintenance Shop (#015008) Sewer - This system needs a new inspection riser with a manhole for traffic weight. The tank also needs pumping. The estimated cost is $700.

District and Park Office (#015012) Sewer - This system needs a new inspection riser and the septic tank pumped. The estimated cost is $500.

Swimming Area Sewer System - As with the camping area, this package treatment plant needs to be replaced with a conventional septic tank with a pump tank and nitrification lines. A suitable area has been located by the health department. The estimated construction cost is $30,000.

Old Personnel Barracks (#015007, abandoned) - This system needs to be left in ground until the area is used again. There are no costs.

The total estimated cost of sewer repair is $74,200.

WATER SYSTEM

Existing Conditions

The park is currently supplied water by three different deep water wells. The wells are among the best that exist in the state parks system in terms of quantity and quality.

The primary well is located about 200 feet north of the maintenance parking lot. Past records indicate that it is a 130 gallon-per-minute well. The well casing is six-inch steel sch. 40 pipe. The well supplies the superintendent's residence, district office, shop area, picnic area number 2, and boat launch area. The water system was installed in phases, the majority of it in 1966-1968. In 1978 an extension of six-inch water pipe to the picnic area was constructed to the new boat launch area. A six-inch asbestos cement pipe, approximately 2,000 feet in length, goes from the pump house to the picnic area, where it reduces to three-inch asbestos cement pipe and continues 300 feet to the picnic toilet building. The new six-inch PVC installed in 1978 ties onto the six-inch AC pipe at the picnic area and runs along the main road for approximately 4,600 linear feet to the entrance to the boat launch road. It then reduces to two-inch PVC and goes to the boat launch toilet building approximately 1,200 linear feet away. This water system also serves the office, district office, superintendent's residence, and shop building. This line leaves the well house at a tee off the six-inch AC pipe and changes to four-inch PVC and goes 240 feet to the shop building. It then reduces to 1.5-inch PVC and goes 200 linear feet to the district office. A one-inch line tees off this line and supplies the superintendent's residence approximately 140 linear feet away.

The second well is located in the camping area. It was drilled and the water system installed in 1968. This well yields approximately 20 gallons a minute. This system has a 2,000-gallon water storage tank with related controls. There is no chlorination system on these wells. To the knowledge of the park superintendent, the submersible pump has not been replaced. The distribution system is composed of a four-inch asbestos cement pipe that supplies the washhouse. This line is approximately 1,020 linear feet in length. There are approximately 1,000 linear feet of one-inch galvanized pipe that tees off the main line to supply the hose bibbs. The hose bibbs are not frost proof, and the water system is drained in the winter months.

The next water system is at the swimming area. This well is located next to the swimming area parking lot in a concrete vault. The well produces an estimated 36 gallons per minute. The 1,000-gallon pressure tank and controls are located inside the bathhouse. This system was installed in 1965. There is no chlorination on this system. The distribution system is composed of a 2.5-inch galvanized main line that leaves the well and travels through the middle of the lower parking lot to the bathhouse approximately 960 linear feet away. It then reduces to 1.5-inch galvanized line to the toilet building and drinking fountains for a distance of approximately 200 linear feet.

An abandoned well is located at the old personnel barracks. This system is no longer in service because of low water volume.

Recommendations

At the primary well, all existing asbestos pipe, the 2,000-gallon storage tank, and the submersible pump should be replaced. Although the system is working satisfactorily at present, it has reached its life expectancy. Also, a chlorinator should be installed on the well. The estimated cost to improve this water system is $35,000.

The water system at the campground is also 25 years old, and it has some AC pipe. This system should be replaced as well. It also needs a chlorinator, and some of the hose bibbs should be replaced with ones that are frost proof in case year-round camping is offered. All galvanized piping needs to be replaced. The estimated cost is $30,000.

The swimming area bathhouse water system is approximately 30 years old and needs replacing. A chlorinator should be added as well. The estimated cost of replacing distribution lines and pump and related controls is $25,000.

The well at the old personnel barracks should be properly abandoned. The well needs filling up with clean sand and grouting. The estimated cost is $500.

The total cost of water system repairs is $90,500.

ELECTRICAL POWER DISTRIBUTION SYSTEM

Existing Conditions

The park is served electrical power by two power companies. Duke Power Company out of Troutman serves the swimming area, campground, and boat launch area. Crescent Power Company of Statesville serves the maintenance and office area. All facilities have underground power with pad-mounted transformers. The power companies own and maintain these distribution lines.

Recommendations

Both power companies should continue maintaining power service. Some of the power distribution lines and transformers should be upgraded within the next five to ten years.

TELEPHONE DISTRIBUTION SYSTEM

Existing Conditions

There are presently six office phones with three dedicated lines to the district and park office complex. There are also two private lines located at the superintendent's residence and ranger residence. There is no public phone at the camping or swimming areas. The phone company is Southern Bell located in Charlotte.

System Recommendations

A public phone should be installed at the campground and swimming area for public safety and convenience. If installation is not available from the phone company as a public service, the Division will install and pay for this service. The phone company should continue maintaining the existing phone service.

SUMMARY OF ROAD AND UTILITY INVENTORY

The park road system is in fair to good shape. The existing DOT and parks agreement should have enough funds to cover the maintenance and resurfacing needs within the park.

All utilities with the exception of the power and telephone are in need of some major renovation. The two package treatment plants are in the most critical need of attention. If the park had the projected use called for in the master plan, these plants would be necessary; but with the present use and projected park funding, they should be replaced with systems designed for the park's level of use. The park water systems should be replaced within the next five years.

MAJOR CAPITAL IMPROVEMENT PROJECT PRIORITIES

The Duke Power State Park Master Plan describes the long-range vision of what the park should be. A significant portion of the master plan is devoted to identifying short- and long-term development plans for the park. The development plans are to be implemented by identifying and detailing specific capital improvement projects that can be constructed through the state construction process. By identifying, evaluating and ranking each development project, the Division has created a priority list of capital improvement projects for each park and for the state parks system. The Duke Power State Park project ranking is based upon objectives such as promoting public health, protecting natural resources, enhancing environmental education, increasing public accessibility, and improving the park's appearance.

As a part of the general management plan process, the master plan with its proposed development (see Figure VII-3) was carefully reviewed to determine if changes were needed. Such a review had not been undertaken since the master plan was published in 1976. Changes in development plans were deemed necessary. The original development project list, recommended changes to that list, and the revised project list follow.

In reviewing master plan capital improvement recommendations, the general management plan evaluation team considered factors such as changes in environmental regulations, condition of facilities, natural heritage inventory, changes in recreation demand, park visitor safety considerations, State Parks Act stipulations, and current recreation demand. This review of proposed capital improvements resulted in changes, additions, and deletions to capital improvement proposals described in the park master plan. Figure VII-4 shows the updated site plan.

PRE-GMP PROJECT PRIORITY LIST

Rank	Description	Mean Score	Total Costs
1.	Treatment system at beach & campground	602	$ 76,700
2.	40 rental cabins package	512	3,527,700
3.	Visitor center complex	504	1,284,400
4.	Dam repair and silt basin	460	533,300
5.	Campground construction (package)	437	532,900
6.	District office, furniture	423	222,100
7.	Repave main road, campground, main entr.	416	467,700
8.	Picnic area construction	372	1,691,400
9.	Renovate superint. residence, wa (1)	369	67,200
10.	Ranger residence (1)	337	130,000
			==========
		TOTAL:	$8,534,100

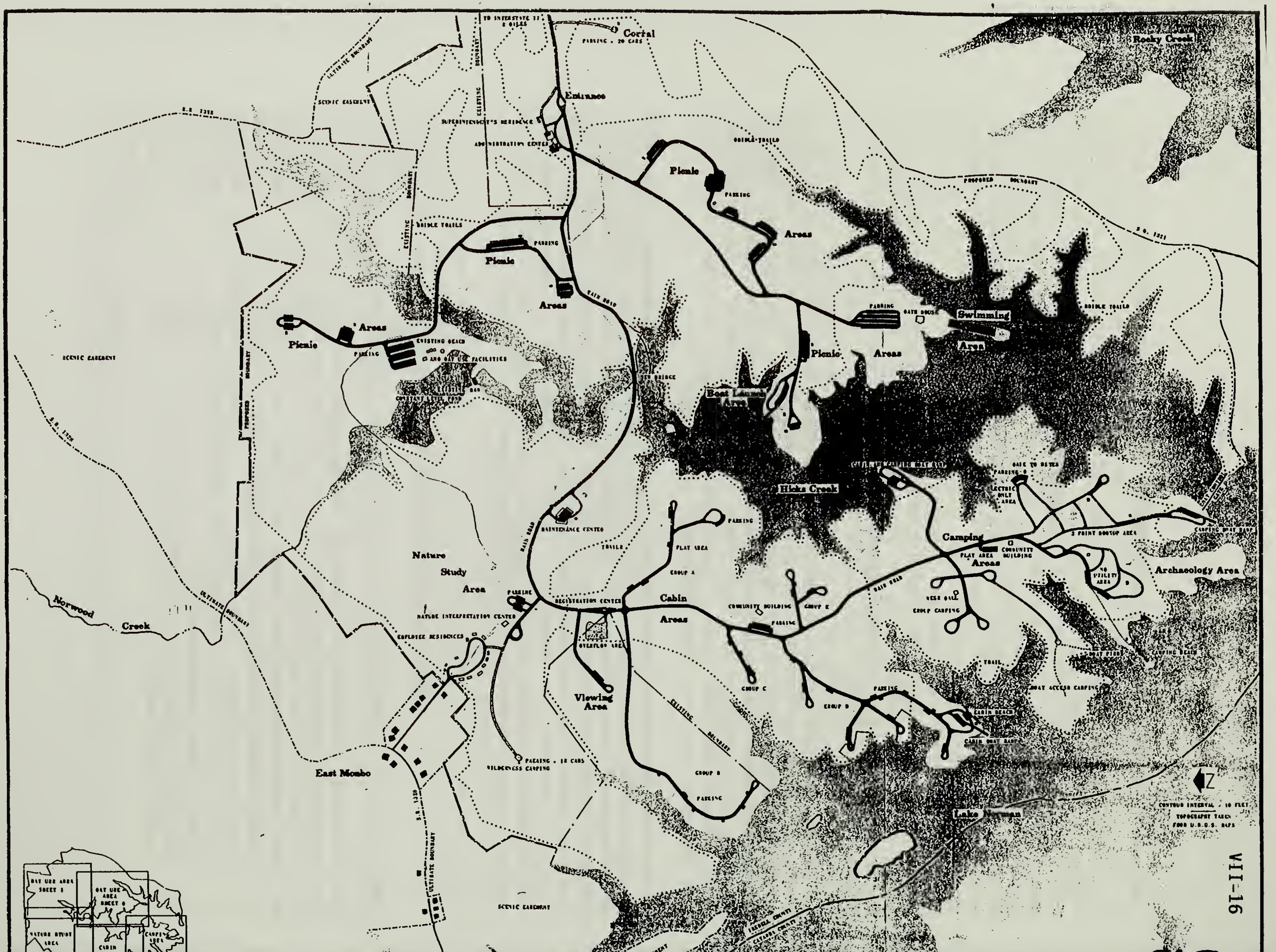
Rocky Creek
Corral
PARKING - 20 CARS
TO INTERSTATE 77 2 MILES
Entrance
SUPERINTENDENT'S RESIDENCE
ADMINISTRATION CENTER
SCENIC EASEMENT
ULTIMATE BOUNDARY
EXISTING BOUNDARY
BRIDLE TRAILS
PROPOSED BOUNDARY
Picnic
Areas
PARKING
Picnic
Areas
Picnic
Areas
EXISTING BEACH AND DAY USE FACILITIES
MAIN ROAD
Swimming
Area
BATH HOUSE
Picnic
Areas
Boat Launch Area
Hicks Creek
MAINTENANCE CENTER
Nature
Study
Area
NATURE INTERPRETATION CENTER
EMPLOYEE RESIDENCES
REGISTRATION CENTER
Cabin
Areas
GROUP A
GROUP B
GROUP C
GROUP D
GROUP E
COMMUNITY BUILDING
FLAT AREA
Viewing
Area
OVERFLOW AREA
WILDERNESS CAMPING
PARKING - 10 CARS
Camping
Areas
COMMUNITY BUILDING
GROUP CAMPING
NO UTILITY AREA
3 POINT HOOKUP AREA
Archaeology Area
BOAT ACCESS CAMPING
CABIN BEACH
CABIN BOAT BASIN
CAMPING BEACH
TRAIL
East Monbo
Norwood
Creek
SCENIC EASEMENT
Lake Norman
IREDELL COUNTY
CATAWBA COUNTY
N
CONTOUR INTERVAL - 10 FEET
TOPOGRAPHY TAKEN FROM U.S.G.S. MAPS
DAY USE AREA SHEET 1
DAY USE AREA SHEET 2
NATURE STUDY AREA
CABIN AREA
CAMPING AREA

Figure VII-3

RECOMMENDED CHANGES TO PROJECT PRIORITY LIST

Projects with Revised Cost Estimates and Unchanged Scopes

1. Ranger residence ($124,700) cost and size revised to current standard.

Projects to be Deleted

1. Dam repair and silt basin project ($533,300) deleted for five years until detailed engineering study can be done.

2. District office/furniture ($222,100) combined with visitor center and park office project.

3. Road repavement project ($467,700) to be accomplished with DOT annual agreement.

4. Picnic area construction ($1,691,400) project deleted because supply exceeds current demand.

5. Renovate superintendent's residence ($67,200), deleted because park staff have made most of the needed repairs.

Projects with Changed Scopes

1. Treatment system at beach and campground ($89,500). Make all septic system and health and safety type repairs; renamed parkwide septic system repairs.

2. Forty rental cabins project ($4,298,200) increased to include multi-purpose building and play courts.

3. Visitor center/district office complex ($1,835,600) adds district office wing to full size visitor center complex.

4. Family campground construction project ($1,435,600) expanded to 90 sites instead of 40 and adds a tot lot, amphitheater, and hookups.

Projects Proposed to be Added to List

1. Water utility repairs ($109,300): all remaining utility repairs that are not health and safety requirements.

2. Water quality/engineering study ($24,100) will determine problems of and solutions to poor water quality at the subimpoundment.

3. Building demolitions ($50,500). Miscellaneous building demolitions as recommended by recent inventory.

4. Building renovations ($92,600). All repairs as recommended by recent inventory inspection.

5. Community building ($332,500). Building to serve community need functions.

6. Trails renovation ($72,300). All trail renovation work as per GMP inventory.

7. Roadway to eliminate inholding ($213,600). This project is land dependent, but will provide a single access park and eliminate future shortcut traffic.

8. Subimpoundment/boat launch landscape improvements ($246,900). This project will enhance the day-use control and use at the subimpoundment whether it remains a swim beach or becomes a boat launch and community building site. Erosion control at the boat launch is also included.

For further explanation of these projects, see Appendix B.

REVISED PROJECT PRIORITY LIST (MARCH 23, 1994)

Rank	Description	*Mean Score	Total Costs
1.	Parkwide septic system repairs	618	89,500
2.	Road to eliminate inholdings	611	$ 213,600
3.	Subimpoundment water quality/ engineering study	514	24,100
4.	40 rental cabins package	514	4,298,200
5.	Visitor center/district office	504	1,835,600
6.	Community building at subimpoundment	502	332,500
7.	Trail renovations	494	72,300
8.	Water utility repairs	489	109,300
9.	Campground construction (package)	477	1,435,600
10.	Parkwide building repairs	440	92,600
11.	Building demolitions	430	50,500
12.	Landscape improvements at subimpoundment/launch	417	246,900
13.	Ranger residence	360	124,700
			==========
		TOTAL:	$ 8,925,400

* The mean score comes from the Division's Project Evaluation Program (PEP). The PEP uses an evaluation formula to rank projects that considers three factors: the objective of the project; the justification or urgency for funding; and the estimated annual number of persons (visitors and/or employees) who are affected by the project. Projects are evaluated by the park superintendent, district superintendent, and Division management.

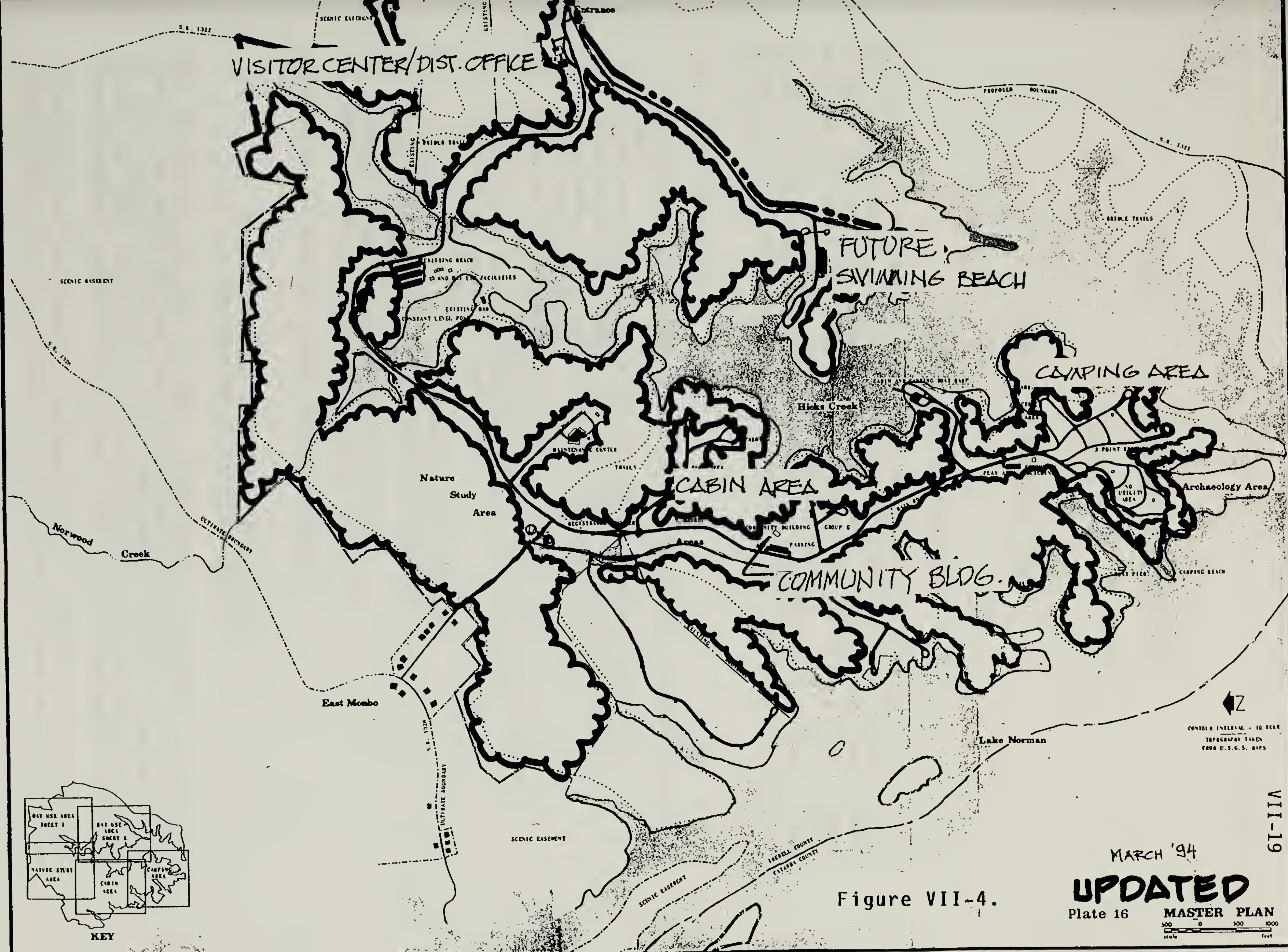
VISITOR CENTER/DIST. OFFICE
Entrance
FUTURE SWIMMING BEACH
CAMPING AREA
CABIN AREA
COMMUNITY BLDG.
Hicks Creek
Nature Study Area
Maintenance Center
Trails
Existing Beach and Day Use Facilities
Existing Dam
Constant Level Pond
Community Building
Parking
Group E
Archaeology Area
3 Point
No Utility Area
Camping Beach
Bridle Trails
Proposed Boundary
Ultimate Boundary
Scenic Easement
S.R. 1322
S.R. 1321
S.R. 1320
Norwood Creek
East Monbo
Lake Norman
Iredell County
Catawba County
N
Contour interval = 10 feet
Topography taken from U.S.G.S. maps
MARCH '94
UPDATED
MASTER PLAN
Plate 16
500 0 500 1000
scale feet
KEY
Day Use Area Sheet 1
Day Use Area Sheet 2
Nature Study Area
Cabin Area
Camping Area

Figure VII-4.

VIII. VISITOR SERVICES AND PARK OPERATIONS

OPERATIONS EVALUATION

During the park purpose statement meeting held at Duke Power State Park on February 10, 1992, 17 park management issues were identified by the general management plan team. Twelve of these issues were operational in nature and assigned to members of the operations staff for investigation. Additionally, three other operational issues were identified prior to the April 1 GMP meeting and brought to the meeting for consideration and inclusion in the GMP deliberations.

The operational issues are:

1. Wastewater Treatment Plant Operations and Staffing Requirements
2. Increased Maintenance Responsibilities and Staffing
3. Impacts of the Poor Water Quality of the Park Lake
4. Management of Islands Located within Park
5. Dual Park Entrances
6. Seasonal Recruitment Success
7. Location and Establishment of Unknown Park Boundaries
8. Facility Needs at Duke Power
9. The Proper Name of the Park
10. Lighted Park Gates
11. Shoreline Erosion Problems on Lake Norman
12. Private/Commercial Development Pressure
13. Staffing Needs of Park
14. Adequate Operating Budget for Park
15. Environmental Education Center at Park

Discussion of each of these issues follows.

OPERATION AND STAFFING REQUIREMENTS OF WASTEWATER TREATMENT PLANTS

The operation of the existing wastewater treatment plant must comply with existing wastewater treatment standards. Load capacity of the plant, potential for wastewater spills during plant operation, and liability for these spills by the operator, park superintendent, and Division are a significant management concern.

Currently, two wastewater treatment plants (WWTP's) are maintained at Duke Power State Park, one for the swimming area and picnic area

#1, and the second serving the campground. Both plants discharge treated effluent directly into Lake Norman. This creates the potential for a serious incident if an accidental spill occurs.

State regulations now require that two certified WWTP operators be available. The present park superintendent and general utility worker meet this requirement. Both plants require a constant, minimum flow to properly operate, and the seasonal operations of the bathhouse, picnic area, and campground cannot produce these flows on a consistent basis as required for peak efficiency of the plants. Operating cost, including labor, permit fees, electricity, and supplies, exceed $6,000 annually. These costs, certification requirements, and potential threats and liabilities are much higher than for a properly designed and constructed septic tank system with field lines. The personal liability of both the park superintendent and general utility worker is also of management concern.

The park has an insufficient number of maintenance personnel to manage the workload and ensure compliance with state certification requirements if one of the two currently certified operators were to resign, retire, or transfer. The current general utility worker is performing the duties of a maintenance mechanic. This position should be restudied based on the certification requirement and duties and responsibilities that have, out of necessity, been required of the position. A second maintenance position should be sought for the park based on the identified workload that currently exists.

The Division has studied the existing WWTP's and determined that they should be replaced with less costly and less manpower-intensive sewage treatment systems, such as septic tanks and field lines. This project has been added to the Division's list of park improvement needs.

The liability issue raised by park staff was investigated following the initial GMP meeting. Findings indicate that as long as the actions of an employee of the Department (1) are within the scope of his/her employment; (2) are not fraudulent, corrupt, or malicious; and (3) do not involve a conflict of interest between the individual and the state, the state could provide a legal defense for the employee, and the Department can extend the employee financial liability coverage up to $1 million through the Tort Claims Act ($900,000) and the Defense of State Employees Act ($100,000).

INCREASED MAINTENANCE RESPONSIBILITIES AND STAFFING NEEDS

Because of increased maintenance responsibilities required of the park maintenance position, this position should be re-evaluated. The critical duties of this position require certification as a wastewater treatment plant operator and the supervision of the seasonal maintenance staff. The park's inadequate staffing and maintenance workload require this employee to work independently and lone much of the time. These job responsibilities and situations exceed the scope of work normally performed by a general utility worker.

Duke Power State Park contains 23 structures, four and a half miles of roadway, six miles of trails, 33 campsites, two group tent camping areas, two wastewater treatment plants, three water distribution systems, three septic systems, 75 picnic sites, one swimming area, and is the site of the West District office. The need to perform duties that include making skilled repairs, handling emergencies, and maintaining the wastewater treatment plant operator's certification required by state law warrants a higher grade-level staff position. There are many state parks across the state that have physical plants and maintenance responsibilities less than or equal to those of Duke Power that have maintenance mechanics on staff, including Cliffs of the Neuse, Eno River, Goose Creek, Hammocks Beach, Jockey's Ridge, Jones Lake, Medoc Mountain, Merchants Millpond, Raven Rock, and Pettigrew. Because of inadequate staffing in this very critical operational area, both park rangers and the park superintendent remain involved in the maintenance activities on a routine basis. Their involvement reduces the time and effort these professionals are able to give to their priority responsibilities: environmental education and interpretation, natural resource management, and visitor protection and safety. This practice and necessity also violates the principles on which the most recent ranger reclassification was based, as well as the Division policies and guidelines established during the previous five years.

The Division will pursue budget increases to upgrade the current general utility worker (GUW) to an appropriate level maintenance mechanic. The Division will seek legislative authority to add a GUW position. A second maintenance mechanic position to serve as the certified WWTP operator and relieve the superintendent of this responsibility will also be needed if the existing package treatment plants continue to operate. If the replacement sewer systems are constructed, as this plan recommends, the second maintenance mechanic position will not be sought.

POOR WATER QUALITY IMPACTS ON PARK LAKE

Upstream erosion and the separation of the state park impoundment from Lake Norman by a dam have caused the park lake to become a sediment trap for Lake Norman. The poor water quality caused by trapped sediment has created a recreation facility of questionable value for swimming and other forms of water recreation. The murky conditions greatly decrease the effectiveness of the lifeguard staff, may present public safety problems, ruin users' swim wear, and reflect poorly on the park and the State Parks System.

Inflows for the park lake come from the Norwood Creek and Powder Spring Branch watersheds. Neither watershed lies within the park. It is believed that major factors contributing to the turbidity of the water are agricultural runoff, timber harvesting, and subdivision development within these watersheds.

The upper portion of the lake, the area upstream of the park road, is heavily silted and no longer suitable for boating. The constant turbidity and poor quality of the water have caused reductions in the populations of high water-quality indicators, such an stone fly larvae, caddisfly larvae, the gilled snail, common aquatic plants and phytoplankton, and a declining fishery. The fish that do survive lack the typical coloration of their species. A decline in swimming activity compares unfavorably with recent increases in overall park usage, possibly indicating that park users are being negatively affected by the sedimentation and turbidity. Park staff no longer use the lake for swimming. Even the lifeguard staff is reluctant to enter the water.

The National Water Safety Congress Standard for Planning, Design, Operation, and Maintenance of Inland Water Swimming Beaches was adopted by the Division in 1988 until the Division could develop its own guidelines for swimming areas. Section 1.5 of the NWSC Standard states that *"an area should not be selected where it is probable that suspension of solids in the water would be extensive."* This section further states *"water run-off in the watershed such as that from barnyards also needs to be considered."*

A thorough study of the watershed is needed to identify threats to the lake's water quality. This GMP proposes such an engineering study to identify problems and propose solutions. Once this is done, the Division will determine if it is appropriate and feasible to take steps to eliminate threats in the two identified watersheds. If so, the Division's Resource Management Section will work with local governments, landowners, and state agencies on matters concerning water quality.

If it is determined that the small lake water quality cannot be sufficiently improved, a new swimming area on Lake Norman should be developed. Division staff have identified a new site for park swimming facilities and have estimated costs of construction at approximately $1.58 million. Acquisition of the site would be necessary for the project to proceed.

Lake swimming at Duke Power State Park is a very important, appropriate, and popular park activity that should be provided at some suitable location. In the absence of proven health hazards, the present facility should continue to function with appropriate precautionary measures until adequate water quality standards are adopted and applied to the lake.

MANAGEMENT OF ISLANDS ON LAKE NORMAN AND LOCATED WITHIN THE PARK'S BOUNDARIES

Duke Power State Park's boundaries include two small islands located in Lake Norman. As a part of the park, these islands must be managed to protect their natural resources and provide safe and appropriate outdoor recreation experiences for park visitors. Park management must address any natural resource concerns, determine the visitor service responsibilities, and resolve any public-safety issues created by recreational use of these islands.

Neither of the islands on Lake Norman has been developed, and both are largely inaccessible to boaters because of the steep shoreline surrounding them as a result of erosion. Park staff and the Division safety officer report negligible public use.

Privately owned goat herds have been present on the islands in the past. These animals should not be allowed to return. Trees are being cut, supposedly by fishermen to establish fishing habitats in the limbs and branches that fall into the water. Monitoring patrols and signs may help discourage this practice.

DUAL PARK ENTRANCES

Two existing park entrances have created difficulties for park staff. These two entrances provide the general public with a convenient short-cut from St. Johns Road to State Park Road and therefore generate significant nonrecreational traffic in the park. Because there are private inholdings at Duke Power, the secondary entrance from St. Johns Road must be maintained to provide access to these property holders.

Planned development for the northeastern shore of Lake Norman will make the current traffic problem much worse and the environment within the park much more dangerous for park visitors. The private owners of the 11 lots inside park boundaries (seven with houses) must be provided 24-hour access to their property, ideally via a private road. Twenty percent of the current park traffic is commuter traffic using the main park road as a short-cut.

Many alternatives are available to resolve this management problem. The simplest solution is the purchase of all the inholdings and then closure of the St. Johns Road access. Such action, however, would involve numerous unwilling sellers and several million dollars in state expenditures. The Division will investigate the feasibility of reconfiguring the park boundary through land acquisition and disposition or exchange to allow the construction of a separate road for access to these houses and lots while improving park operations and visitor security. All options will be considered, including no action with respect to impacts on the private property owners, park staff, and park visitors.

SEASONAL RECRUITMENT PROBLEMS AT DUKE POWER STATE PARK

The recruitment and retention of seasonal employees is a continuing problem for the park. Poor water quality and working conditions as well as low salaries are major contributing factors making recruitment of lifeguards difficult. Salary, working conditions, park location, and agency support are significant employment considerations for other seasonal staff.

Numerous problems in recruiting and hiring seasonal positions are common to all state parks across the state: There has been no significant salary increase since 1984; parks are usually located in remote areas and require long drives to and from work; living conditions in seasonal barracks are often substandard; seasonal workers are required to purchase their uniforms; and all seasonals are required to work weekends, major holidays, and various work shifts. Several conditions unique to Duke Power State Park compound an already difficult recruitment and retention situation.

In addition to the serious responsibilities that come with the duties of a lifeguard position, the poor water conditions previously discussed create an undesirable situation at the park. Instead of paying a salary that will attract the most competent and capable lifeguards available to work in these conditions, the Division pays the lowest lifeguard wages in the state. Year after year, filling these critical positions is difficult, and retaining qualified employees has become increasingly rare.

Further complications arise at Duke Power State Park because no seasonal barracks are available. Recruitment is therefore limited to only those people living within commuting distance of the park. With the exception of the ocean swimming areas, the Duke Power State Park lake is the most difficult lifeguard situation to staff in the state parks system.

Low seasonal wages, lack of park housing, and the requirement that seasonal employees purchase their own uniforms are all negative incentives for the six-month park attendant position. Every year, these seasonal salaries shrink in buying power as uniforms and the cost of commuting to the park increase. Recruitment and retention of competent, qualified personnel able to deal with park visitors as well as perform routine duties in a competent manner becomes more difficult, if not impossible.

LOCATION AND ESTABLISHMENT OF PARK BOUNDARIES

Some park boundary lines have not been located and clearly marked on the ground. In order to properly manage the park, appropriately enforce park rules, avoid public confusion and accidental trespass, and protect park resources, accurate and clearly defined boundary lines are a necessity.

Duke Power State Park's boundary lines need to be located and marked in four areas of the park:

1. at the main park entrance on State Park Road along the overhead powerline right-of-way;
2. at both the north and west boundaries of the Ted Sherrill property that corners on the main park road;
3. around the inholding areas; and
4. at the old schoolhouse on SR 1402.

The approximate total length of these unknown property boundary lines is 5,600 feet. A corner pin with the Frank Davidson property appears to have been moved too far onto park lands, and a survey is needed to establish its proper location.

The surveying needs of the park were identified for a Volunteers in Park (VIP) project with CP&L in 1991, but the company was unable to commit a licensed surveyor to the project. The CP&L VIP committee referred the project to Duke Power Company, and Duke Power initially committed itself to support of the park. In November 1992, Duke Power reaffirmed this commitment to assist the state parks system by adopting its name-sake park and addressing the many critical needs the park has as a result of its lack of adequate operating and capital improvement budgets. The boundary lines of the park will be located, surveyed, and marked by employees of Duke Power Company.

PARK FACILITY NEEDS

Park visitation has increased and public outdoor recreation demands have changed since Duke Power State Park was created in 1962. Now, after 30 years of public use, the park needs additional facilities to fulfill the mandate under the State Parks Act. Facility needs include ranger residences, vacation cabins, a park office/visitor center, picnic shelters, community buildings, open activity areas, and public telephones. This park also has had neither adequate operating funds nor enough staff to satisfy the Division's programming requirements and federal and state laws and regulations.

The lack of adequate park facilities for existing public use has resulted from long-term inadequate funding of both capital improvements and annual operating and maintenance needs. The park's inadequate funding has had many undesirable impacts on the park and its ability to provide desirable recreational opportunities. Many deficiencies now exist that require the attention of the Division before they affect the health and safety of the park users. Discussion of these deficiencies follows.

- Without total control of park access and provision of adequate park housing, the security of both park employees and campers is jeopardized. The secondary park entrance, necessary because of the inholding area, provides the general public with 24-hour access to the park and prohibits the control necessary by staff to provide adequately for the safety of overnight users and security of their property.

- The lack of public telephones at the campground and swimming beach has been recognized by the Division safety officer as a significant threat to the health and safety of the campers and is a violation of the safety guidelines issued by the National Water Safety Congress and adopted by the Division.

- One of the major hindrances to seasonal recruitment and retention of staff is the absence of seasonal housing for the temporary staff hired during the visitor-use season, which runs from April through October. The seasonal barracks at the park was converted some years ago to function as an administrative center for the West District superintendent and as a park headquarters. Duke Power State Park needs a properly located office/visitor center complex that is large enough to also function as a district administrative center. The existing office structure could be easily converted back and used as the seasonal housing facility for the park.

- The park has no indoor facility in which interpretation and environmental education programming can be conducted. The only park structure large enough to accommodate a group for such purposes is the picnic shelter at the swimming beach. This shelter has no electricity and is not properly located for use by campers and other concentrations of park visitors. A park office/visitors center with an interpretation and education area is needed at Duke Power State Park to adequately serve the public.

- Duke Power State Park has only one open activity area, the present swimming beach. Park users and staff have expressed a need for additional open areas at the campground and picnic areas to accommodate recreational activities and interpretive programming. Utilization of the beach area for these activities is unsatisfactory and should not continue because of the impingement on the swimming activities and the potential distraction to the lifeguards when they are on duty. The close proximity of the water is an added safety concern for the staff conducting these programs and an attraction to participants, especially small children. Should a tragedy occur during or immediately following a program or organized activity in this area, the staff and Division could face some very serious liability issues. Large open spaces one half to two acres in size are needed in close proximity to areas of concentrated visitor use, like the campground and picnic areas. Because of the damage to the standing timber caused by Hurricane Hugo, these open areas may be easier and cheaper to create at this time.

Because of the many facility needs identified at this park, the issues were ranked based on public safety and program impact.

1. Two public telephones should be acquired immediately. One should be installed at the swimming area to gain compliance with the NWSC standards and one in the campground for safety of park users remaining overnight in the park. They would provide a means of communication with emergency medical and law enforcement agencies in the area. The Division will augment the park operating and maintenance budget to cover these costs, $1,800 annually.

2. Construction of a park office and visitor center is a critical need for the administrative functions of the park and district office. Construction of an office/ visitor center will also allow the seasonal barracks, now used for office space, to be used as it was originally intended. An adequate barracks will aid in recruitment and retention of qualified and capable seasonal employees, especially seasonal lifeguards.

3. One additional ranger residence is needed to ensure that a professional staff person is available in the park to respond to emergencies whenever the campground is open and overnight visitors are residing in the park. The additional residence will bring the total to three, which is adequate to ensure that at least one permanent, qualified park staff person is available to respond to visitor complaints and emergencies. Because of the secondary access to the park, this is of critical importance.

The permanent staffing of this park is not adequate for the high level of visitation the park receives, the facility management and programming responsibilities of the staff, and the hours the park remains open on a weekly and annual basis. To adequately maintain the facilities at this park and supervise seasonal maintenance employees, a maintenance mechanic's position is needed. Until this position is added to the staff, the superintendent and park rangers will, of necessity, remain involved with the maintenance and cleaning of park facilities and the supervision of the seasonal maintenance staff.

A full-time clerk has recently been added to staff the park office five days a week and assume the public contact and clerical responsibilities previously shared by the district clerk and the on-duty park staff. The park is now better equipped to manage the programs and carry out the essential public communications that are vital to any public-service organization. The full-time clerk helps provide expertise needed to maintain the office and public contact function and helps relieve the professional staff from the clerical functions they must perform. While this full-time position will ensure that a point of contact is available in the park 40 hours a week, a peak-load position is also needed to respond to public inquiries during the park's most hectic time, Saturday and Sunday.

Because of the type of facilities provided at Duke Power State Park, the facilities proposed to be added, the needed programming, and the present and future public use of these facilities, the staffing should also include one additional park ranger position. This additional ranger position will allow the park to have a qualified park ranger on duty every hour the park is open during the busiest seasons of the year and also permit the superintendent to devote more time to supervision, management, and planning responsibilities and much less time on park patrol and maintenance activities. A new ranger position would also ensure a more equitable distribution of program management responsibilities among the staff.

The Division will pursue increases in the operating budget of the park, especially 2000 series line items and the equipment needs of the park. Specifically, additional funds will be allocated to the park for installation and operation of two public telephones, $1,800 annually, and lights at all gates maintained in the park, $1,000 annually. The Division will also support and pursue establishment of the full-time and peak-load positions recommended by the OEP and documented above.

Public safety and security are serious concerns and justify the facilities recommended. Public telephones will be installed as soon as possible in the campground and at the swimming beach. A park office/visitor center will be added to the capital improvement list for the park, and one additional park ranger residence will be constructed to ensure that a staff person is available to provide emergency response capability within the park during the camping season.

THE DUKE POWER STATE PARK NAME

The park was named after Duke Power Company as a condition of deed transference. The name has created much confusion on the part of the public and Duke Power employees, however, by indicating an ownership or management relationship between the park and the utility company. The public misconceptions caused by this name have negatively affected public support for the park and its many needs.

Duke Power State Park was named in the property deed transferring ownership of the property from the utility company to the state of North Carolina in 1962. This name has caused many misunderstandings over the years, since Lake Norman was built and is operated by Duke Power Company. Because the official name of the park is Duke Power State Park, most people assume it is owned and operated by the utility until they are told differently by park staff.

Table VIII-1. Operating and Equipment Budget

LINE ITEM	DESCRIPTION	FY 91/92 EXPENDED	FY 92/93 REQUEST	FY 92/93 GMP OPTIMUM W/EXISTING OPERATIONS	NOTES
1211	Salaries - Staff	$ 87,778	$ 87,778	$150,000	add PR, MMIII, CT
1411	Temporary Wages	1,870	3,700	6,200	add CT, fully fund exist. position
1491	State Parks Seasonal	24,483	28,834	34,488	extend PA one month
2110	Janitorial Supplies	1,203	1,800	2,500	
2130	Uniforms & Clothing	2,041	1,850	3,500	add. employee allowances
2190	Household & Cleaning Supp.	0	0	100	
2310	Educ. & Scientific Supplies	1,468	1,500	3,500	I&E & EELE supplies
2360	Med. & Agric. Supplies	650	1,350	1,500	
2400	Maint/Const. & Repair Supp.	5,360	5,500	10,000	MMIII support
2510	Motor Fuels & Lubricants	3,240	3,600	6,000	additional vehicles
2520	Tires & Tubes	590	375	1,750	additional vehicles
2530	Parts	420	650	850	
2541	Boat Operations	2,705	400	1,000	
2590	Other Motor Veh.Operations	1,700	2,000	3,000	additional vehicles
2600	Office Materials & Supplies	300	300	500	
2700	Purchases for Resale	1,940	2,700	3,500	
2910	Computer Supplies	0	0	200	
2920	Photographic Supplies	25	50	200	
2990	Other Supplies	1,150	1,500	1,500	
3111	Travel-in-State Transport.	2,760	2,950	4,000	
3112	Travel-in-State Subsistence	230	1,250	1,500	training
3122	Travel-out-of-state Subsist	0	0	0	
3210	Telephone	1,810	3,500	3,500	2 additional public phones

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[1] The table presents an adequate operating and equipment budget for Duke Power State Park given current levels of visitation, facilities, and staffing.

Table VII-1. Operating and Equipment Budget (Cont'd)

LINE ITEM	DESCRIPTION	FY 91/92 EXPENDED	FY 92/93 REQUEST	FY 92/93 GMP OPTIMUM W/EXISTING OPERATIONS	NOTES
3250	Postage	200	400	400	
3290	Other Communications	0	0	0	
3310	Electricity	5,070	7,000	7,000	Acquire area lights
3320	Fuel Oil	0	0	0	
3330	Natural Gas	0	300	300	
3390	Other Utilities	0	175	0	
3510	Repairs to Building	160	250	500	
3590	Other Repairs & Maint.	750	800	1,500	
3600	Freight & Express Delivery	70	0	150	
3700	Advertising	70	125	125	
3990	Other Services	4,600	4,200	5,500	
4390	Rental of Equipment	35	800	400	Additional Equipment
4400	Service & Maint. Contracts	125	0	500	
4910	Dues & Subscriptions	0	0	125	
5100	Office Furniture & Equip.	0	0	600	
5200	Data Processing Equip.	0	3,500	3,500	
5300	Educ., Med., & Agric. Equip	0	0	3,500	EELE Equipment
5310	Film	0	0	400	
5400	Motor Vehicles	15,035	21,400	45,000	replacement & new vehicles
5430	Boats & Trailers	0	3,500	3,500	
5500	Other Equipment	0	5,700	29,000	
5600	Reference Books	0	250	300	
8510	Imprest Cash	150	150	200	
	TOTALS:	$167,488	$197,537	$339,563	

Park staff can recount numerous tales of people coming to the park or stopping a ranger while using the park to ask a question about the company, its operations, a recent utility rate hike, the company's retirement plan, or to pay their utility bill. Routinely, complaints are received from campers because they assume a park owned and operated by a giant utility company like Duke Power should have electrical hook-ups in its campground. Duke Power employees have called the park from time to time, assuming the facilities are operated by fellow company employees, requesting reservation, discounts, and special courtesies because they work for Duke Power Company. These instances and many other point to a significant public perception problem concerning the park and the people who use it.

Until recently, the park has been a positive public relations factor for Duke Power Company. With the Hurricane Hugo damage, the problems with the park lake and swimming area, other park deficiencies and management issues, and the recent adoption of the state parks system by Carolina Power and Light Company, Duke Power has begun to respond to the needs of this park. The utility has provided training to West District employees for the commercial drivers license test. The staff at the company's Energy Explorium have assisted the park I&E programs and staff, and the company has recently initiated efforts to assist the park with a boundary line establishment and a natural resource inventory of the park. Duke Power has also contacted the Division about specific needs of the system with which the company may be able to assist.

The public, however, will continue to be confused about who owns and operates the park as long as it retains its present name. The Division and Department should approach the company about methods to resolve the confusion created by the name, including changing it to a more appropriate name. Since the name of the park is specified in the deed of transference, the company may insist that it not be changed.

LIGHTED PARK GATES AT APPROPRIATE PARK AREAS

Control gates are used to enhance park management and control of public access to the park or portions of the park during specific hours or seasons of the year. These gates are usually located in remote, unlit portions of the park or at the main entrances. To improve employee safety after dark and to enhance gate visibility and operation at night, area lights are a necessary safety feature at these location.

Duke Power State Park has three gates that are opened and closed daily by employees and their family members when entering or leaving the park before opening hours and after closing hours and by campers for emergency reasons. None of these gates are lighted, and the present line-item budget cannot fund the additional expense of operating and maintaining these needed security lights. A 1987 physical security survey conducted by the Division's safety officer recommended that area lights be provided at each of these gates for safety of park personnel, their families, and the public travelling these roads and encountering these gates after dark.

It is an operations policy that all public access control gates be well lighted. The park will immediately take action to provide an area light at each of the three gates cited in the safety survey. The chief of operations will add the necessary funds to the park's budget, line item #3310, to cover the estimated $1,000 in utility costs for the operation of these safety lights.

SHORELINE EROSION PROBLEMS ON LAKE NORMAN

Shoreline erosion is a natural process when caused by the action of waves driven by wind. It can also be accelerated by power boats driven by men, as is the case at Lake Norman. The result is the same: a little soil is lost, the lake's capacity is infinitesimally diminished, and the water encroaches a little further onto the land. The cumulative effects of these encounters may threaten park facilities in certain locations or create steep drop-offs and public safety hazards.

The only developed area currently affected by erosion that creates a significant problem is the boat launching ramp and the courtesy dock. One of these concrete ramps is broken off below the water line because it has been undermined by erosion from prop-wash of the power boats being launched and being driven off boat trailers and from wave action during low lake levels. This erosion makes launching and retrieving boats much more difficult. In some cases it may be hazardous to the boat trailers and vehicles used. Both ramps should be carefully inspected when Lake Norman is drawn down in the winter and the necessary repairs made, filling and compacting the undermined areas and repouring the concrete portions broken off and lost to this erosion. This work is included in the proposed landscape project.

RESIDENTIAL ENVIRONMENTAL EDUCATION CENTER

The Division's evaluation criteria for residential environmental education center sites were applied to Duke Power State Park in a 1991 Division-wide survey of parks. This evaluation process determined that Duke Power State Park was a suitable location for a residential environmental education center. Duke Power was ranked seventh in priority for the location of this type facility.

Environmental education is a fundamental mission of state government as outlined in Article XIV, Section 5 of the Constitution of North Carolina. This mission is also clearly specified in the State Parks Act and is recognized as a fundamental purpose of the state parks system. The Act states that "*park lands are to be used by the people of this State and their visitors in order to promote* *understanding of and pride in the natural heritage of this state."* It further states that *"tax dollars of the people of the State should be expended in an efficient and effective manner for the purpose of ensuring that the state parks system is adequate to accomplish the goal as defined in this Article."*

The 1991 systemwide evaluation was undertaken at the direction of the Division director to establish appropriate criteria for the selection of parks suitable for environmental education centers, the general locations for residential environmental education centers, and to determine how many of these facilities would be needed by the Division to implement an effective program. Many criteria were used to evaluate parks individually for their ability to accommodate the operation of an EEC without affecting the resources and existing uses of the park. Many state parks were able to satisfy these demanding criteria, but it was determined that the Division would require a minimum of five centers and a maximum of seven to properly and effectively implement residential environmental education across the state. While the Division has never endorsed nor acted on the findings of this evaluation, the Department of Environment, Health, and Natural Resources has made a commitment to establishing three centers across the state.

The Division has established a scope of function, the design concept for its residential environmental education centers, and developed a construction cost estimate and annual operating costs for these centers. The Division needs to resolve whether it will pursue development of seven residential environmental education centers. If seven environmental education centers are endorsed, the Division will select the appropriate site within the park and develop a conceptual plan for the center and its support facilities.

IX. LAND ACQUISITION NEEDS

LAND ACQUISITION STATUS

Duke Power State Park contains 1,458 acres. Duke Power State Park was included in the 1985 appropriation for state park land acquisition, but no land was acquired. The acquisition of land necessary to eliminate inholdings and control access was listed in the legislation. Division staff are currently working on the leasing of the shoreline from Duke Power Company to improve resource management activities and public safety.

FUTURE LAND ACQUISITION NEEDS

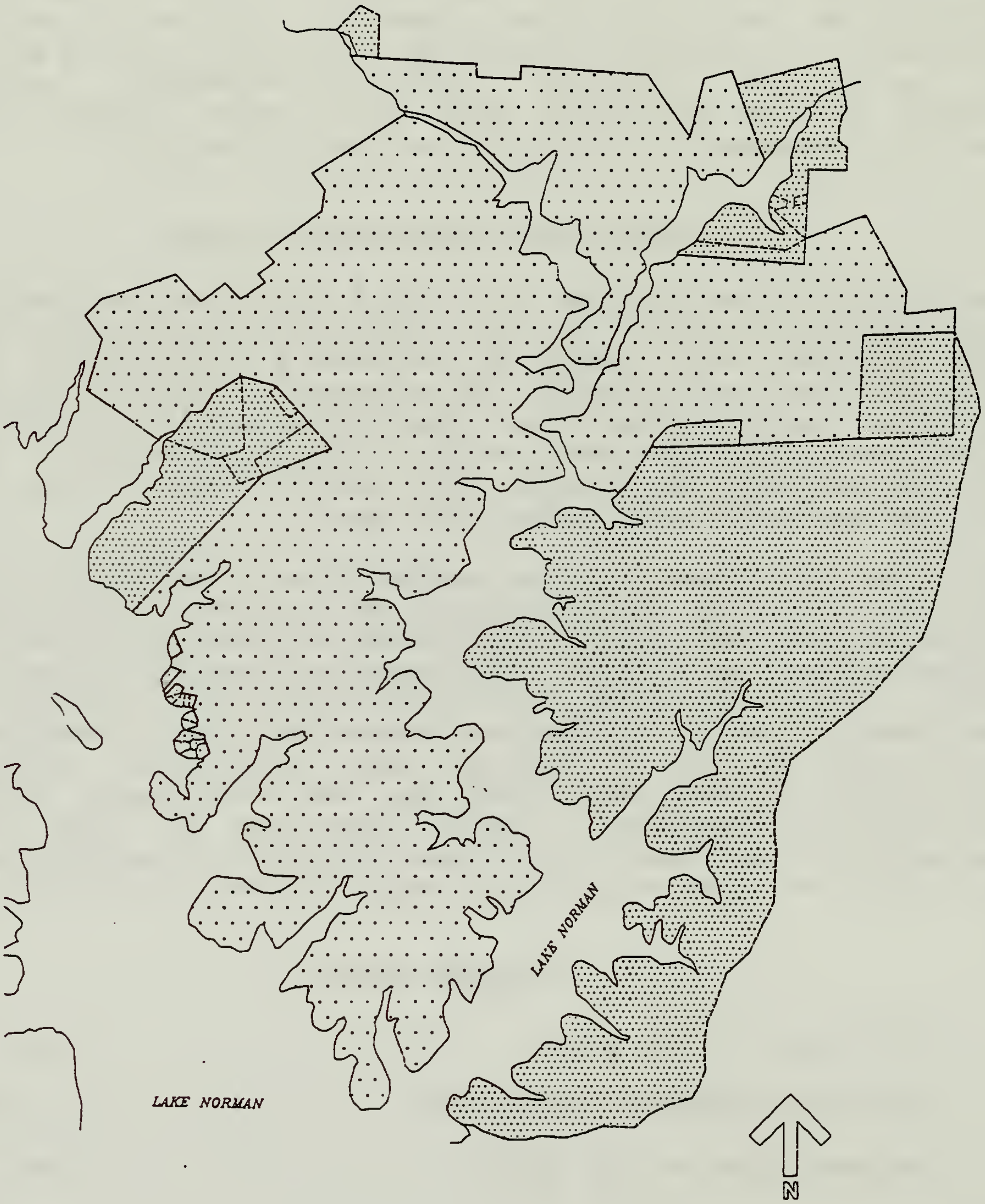
Completing the master plan for Duke Power State Park would require the acquisition of 969 acres. Past land acquisition priorities have included land needed to eliminate inholdings, for access control, land base needed for development of facilities, and scenic and water quality protection. Inholdings require 24-hour access at this time, which adversely affects park operations. In places, private property is visible from the park road; thus changes in land use may adversely affect the park.

Since the development of the master plan, residential development has occurred around the perimeters of the park. The elimination of inholdings and the control of access by acquisition as called for in the master plan will be very expensive because of small lots and houses. The feasibility of reconfiguring park boundary to allow the construction of a separate access will be investigated along with other options to improve this operational problem. The acquisition of additional land for the development of facilities and scenic protection is still important for this park. The peninsula to the east of the existing park is mostly undeveloped and should be acquired prior to any further private development.

SUMMARY TABLE

1985 size of the park	1,458 acres
1985 land program additions	0 acres
Current size of the park	1,458 acres
Shoreline lease	140 acres
Anticipated size of the park	1,598 acres
Master planned needs	969 acres
Master planned size of the park	2,567 acres

DUKE POWER
STATE PARK
LAND ACQUISITION



LEGEND

- ⁘ PARK–1985
- ▨ FUTURE NEEDS

SCALE IN FEET

APPENDIX A

PARK PROFILE

DUKE POWER

PARK PROFILE

Location: Iredell County

Size: 1,458 acres

Reason for Establishment: The park was created in 1962 when Duke Power Company donated 1,328 acres along the shore of Lake Norman to be used and maintained as a state park primarily for recreational purposes.

Facilities:
- Boat launch (Lake Norman)
- Family camping (33 sites with restroom/shower, no hookups)
- Group camping, primitive (2 sites)
- Picnic area (67 tables)
- Swimming area (33-acre lake, bathhouse, refreshment stand)
- Hiking trails (6 miles)

Existing Staff:

Permanent	Seasonal
1 Superintendent III	1 Bathhouse Manager
1 Ranger III	1 General Utility Worker
1 Ranger II	6 Life Guards
1 General Utility Worker	2 Parking Attendants
1 Clerk	1 Refreshment Stand Manager

Proposed Staffing Additions:
- 1 General Utility Worker
- 1 Peak Load Clerk
- 1 Ranger I

Statistics:

	FY 1990-91
Visitation (Calendar 1991)	207,154
Operating Budget	$150,251
Revenue	$ 33,643

APPENDIX B

CAPITAL IMPROVEMENT REQUESTS

REVISED PROJECT PRIORITY LIST (MARCH 23, 1994)

Rank	Description	*Mean Score	Total Costs
1.	Parkwide septic system repairs	618	89,500
2.	Road to eliminate inholdings	611	$ 213,600
3.	Subimpoundment water quality/ engineering study	514	24,100
4.	40 rental cabins package	514	4,298,200
5.	Visitor center/district office	504	1,835,600
6.	Community building at subimpoundment	502	332,500
7.	Trail renovations	494	72,300
8.	Water utility repairs	489	109,300
9.	Campground construction (package)	477	1,435,600
10.	Parkwide building repairs	440	92,600
11.	Building demolitions	430	50,500
12.	Landscape improvements at subimpoundment/launch	417	246,900
13.	Ranger residence	360	124,700
			==========
		TOTAL:	$ 8,925,400

* The mean score comes from the Division's Project Evaluation Program (PEP). The PEP uses an evaluation formula to rank projects that considers three factors: the objective of the project; the justification or urgency for funding; and the estimated annual number of persons (visitors and/or employees) who are affected by the project. Projects are evaluated by the park superintendent, district superintendent, and Division management.

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